THE LANCET.

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CLINICAL LECTURE,

DELIVERED AT

UNIVERSITY COLLEGE HOSPITAL,

BY

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Hemiplegia occurring suddenly without coma; instant death after six weeks; post-mortem appearances; clinical remarks; varieties of paralysis; importance of distinguishing those which are not attended by coma; difference between the symptoms of hæmorrhage and ramollissement; absence of fever and of severe local symptoms in certain inflammations of the brain and other organs; reflex movements; involuntary laughter a symptom of disease of the brain; prognosis; grounds of treatment; remarks on the use of iodide of potassium; morbid appearances; paralysis on one side with disease on both; sudden paralysis in meningitis; mode of death in disease of brain, generally occurs by asphyxia, but sometimes, as in this case, by syncope.

CHARLES KNIGHT, aged 39, was admitted Wednesday, October 27, 1841, under the care of Dr. Taylor. He is a remarkably stout, well-formed person, of sanguine temperament, fair complexion, and large chest; is a married man, and has four children; he has been in the habit of drinking a good deal; his mother is living and healthy; his father died of consumption; the patient is a tailor. Nine years ago he had a violent pain in the head; his wife was told that it was inflammation of the brain, for which he was blistered and leeched: ever since that time the patient has suffered from pain in his head, which has been more severe at certain periods, and about twice a-year has been so bad as to confine him to his bed; he has not drank so much lately on account of this affection; he has been out of work for six months, and is very irritable and fidgetty at being out of employment; has not wanted any of the necessaries of life. The present illness came on last Friday week, when he had a fit, during which he fell down three times; he was able to rise twice, but the third time was quite unable to do so. He had complained of giddiness for two or three days before the attack; he did not lose his senses for a moment during the fit, but lost the power of speech; he was not convulsed when he fell. A surgeon was called in, who cupped him after the fit, and in the evening bled him from the arm; the next morning he was bled again. He lost the power both of sensation and motion in the right arm and leg. A blister was applied to the back of the head; his bowels have been opened by means of castor-oil. At first he passed his urine with difficulty, but since then has passed his urine and stools into the bed; he is conscious of it, but cannot prevent it; has had considerable difficulty in swallowing. He now feels very giddy; has no headach; but the head is rather hot, and the cheeks a little flushed; the left pupil is about the natural size, the right rather larger. The pain which he has had in his head for the last nine years has been most on the left side, and he had pain there before the fit; it existed, but in a less degree, on the right side of the head. The right cheek is flatter than the left, and somewhat elongated; when he moves his mouth it is drawn to the left side, and when he laughs the left angle of the mouth is elevated. The tongue appears to have a tendency to deviate to the right side, but he cannot protrude it beyond the lips: there is perfect paralysis of motion of the right arm and leg, but the sensation is unimpaired, the sensation was destroyed immediately after the fit, but returned in two days; there is no rigidity of the limbs; respiration can scarcely be heard in the lower part of the chest (in consequence, apparently, of its not being completely expanded); pulse 104, small, and appears to be larger in the sound wrist than in the opposite one; heart's sounds and impulse natural. To be cupped on the left temple to ten ounces; to have three grains of calomel and four of sugar in powder three times a-day. To have half a drop of croton oil occasionally.

28. Nine, a.m. He has not passed any

urine since yesterday morning; the bladder is considerably distended. The catheter was introduced, and about three pints of urine drawn off. The patient seemed relieved by the operation, which was repeated at eight o'clock, p.m.

29. Improved; he can protrude the tongue beyond the lips, which he could not do yesterday; there is no pain in the head; skin about the natural temperature; expression of the countenance quite intelligent; pulse 88, small and soft. To-day there is incontinence of urine; the patient feels very thirsty; intellect perfectly clear; the temperature of the two sides was taken. In the axilla the thermometer rose to 99° on both sides; in the popliteal space on the right side, 88°; on the left, 90°; right foot, 68°; left, 72°; urine, specific gravity 1.002, slightly acid, no albumen.

Nov. 1. His mouth is very sore; can protrude his tongue better; has no headach nor giddiness, except when he sits up; head is scarcely hot; cannot move the right arm nor leg; can now retain his urine, and passes it when he wishes; his stools are passed into the bed; he is altogether considerably improved; the right pupil is still rather larger than the left.

3. There is no difference in the pupils to-day; much improved; he feels hungry; the tongue does not deviate so much from the centre. To be cupped on the back of the neck to eight ounces.

5. No heat of head, pain, nor giddiness; cannot sleep; can protrude his tongue better, but still there is a slight deviation to the right side; can swallow better; mouth still sore. To have three grains of iodide of potassium in an ounce and a half of water three times a-day.

8. Improved; he can speak better, and can protrude his tongue further. Increase the dose of the iodide of potassium to four grains.

10. Still improving; there is no power of motion of the paralysed side; he can speak several words, and protrude his tongue some distance.

12. There is no improvement on the affected side; there is no difference of the pupils; his speech is greatly improved. To have a blister to the back of the neck; increase the dose of the iodide to five grains.

15. Speaks much better; can protrude his tongue quite readily; there is a feeling of numbness in the right side, but sensation is not impaired; there is frequent shooting pain in the right arm and leg, and for the last day or two there have been involuntary movements of the right leg; the right half of the head is very giddy; he cannot see to read except the letters be large; both eyes are dim, but the right most so; when he touches any object with his right hand, he feels as if something were interposed betwixt it and the fingers; there is no headach; he sleeps very badly, without any obvious reason; he has horrible dreams; his memory is not at all injured, and he can perfectly understand what is said to him; pulse 90, appears to be softer and smaller in the paralysed wrist than in the other. Increase the dose of the iodide to six grains.

19. Complains that he caught cold two days ago, since which he has felt weaker in his back and loins; there is a gnawing pain in the latter situation, which is not increased at night; he has a slight cough; no expectoration; no pain in the chest; there is a good deal of sonorous rhonchus, and some mucous in the back part of the chest, principally on the right side; he is more giddy to-day, and his head feels very heavy on right side; bowels confined. To have a third of a drop of croton oil in a pill directly, and repeat it when necessary. He does not corrugate the eyebrow on the right side so well as on the left, but he can close the right eye quite well.

22. He is better to-day; there is less cough and shortness of breath; his tongue does not deviate at all from the middle line; there are still jerking motions of the arm and leg; these occur principally when he yawns.

24. Feels very weak; he frequently laughs violently without any considerable cause; his bowels are rather confined.

26. Has no headach, but feels very giddy when he sits up; his bowels are still confined; has no cough; there is no movement.

29. Yesterday he had pain in the right side of his chest and abdomen resembling cramp; this is better to-day; there was no pain in his limbs; he has no headach; appetite good.

Dec. 3. He can see to read much better than he could; his bowels are torpid; he is therefore obliged to take the pills with croton oil every other day.

6. Bowels not well open; complains of soreness in lying or sitting down on the gluteal region. Apply a lead plaster to the part.

8. Complains of pain in the right side of the chest; on the lower part of both sides of the chest respiration not well heard; little cough and no expectoration; above, sonorous rhonchus on both sides anteriorly; below, respiration feeble. To be cupped under the right scapula to eight ounces.

10. Much the same, except that the bronchitis is removed, and he is to leave the hospital, at his own request.

13. Now and then the leg, when drawn up, is jerked down by muscular movement, especially when he yawns; right side of the head and body does not feel so heavy or benumbed. Discharged.

A little after leaving the hospital he began to feel giddy again, and on Wednesday, the 22nd of December, was cupped on the back

of the neck, which somewhat relieved his giddiness; his appetite was good, and he ate more than when in hospital, but took no beer. He continued in the usual state till the morning of the day on which he died (Dec. 28th), when his wife got him up into a chair near the fire. He soon began to complain of his limbs feeling very heavy, and wished to be moved to bed again. Up to this time he had been talking as usual, and his intellect was unaffected: he was placed in bed in a sitting posture, and in a minute or two, hearing him breathe rather loudly, his wife turned towards him and found his head had fallen upon his breast, and in a minute more he was dead.

At various times during his stay at home his wife used to tickle the sole of his right foot, the patient having told her that Dr. Taylor did so, in order to make the leg move. Occasionally, but not always, she could in this manner produce a jerking motion in the leg.

After-death Appearances.

The body was examined sixteen hours after death.

Exterior.—*Embonpoint* very considerable; very little rigidity of limbs; not less on paralysed than on sound side.

Head.—A considerable quantity of bloody serum oozed out from the scalp when cut. On removing the skull-cap a much larger quantity dribbled rather rapidly away; this contained a larger admixture of blood, so as to resemble rather thin fluid blood; it appeared to come from the longitudinal sinus by three or four small openings, probably produced by tearing off the calvarium. On cutting off the dura mater, the parietal and visceral layers of the arachnoid were found to be connected by several old adhesions over the left anterior lobe. Arachnoid generally over both hemispheres had an opake, milky aspect, more so over the anterior than the posterior lobes, and more over the left than the right hemisphere. A considerable quantity of tolerably clear serum effused beneath the arachnoid, separating rather widely many of the convolutions, and giving it the aspect of small bladders near the margin of the great longitudinal fissure. The arachnoid was much thickened, tore with difficulty, and cut with a slight grating noise. The pia mater was, perhaps, more than usually vascular; it came away readily from the surface of the brain without bringing with it any of the cerebral substance. All these appearances were more marked on the left than the right hemisphere; membranes at base and sides healthy; surface of the brain denuded of its membranes, moist, and rather pale; lateral ventricles contained a considerable quantity of clear serum, perhaps half an ounce in each; the foramen of Monro enlarged and circular; large vessels moderately filled, seen on the floor of the ventricle; plexus choroides of each side rather pale; velum interpositum thickened and dense; no opacity of the arachnoid lining the ventricles; grey matter darker than usual, having a light bistre tint; in many parts it had a transparent, rather gelatinous, appearance, and was softer than elsewhere; it was softer than natural, but not pulpy; the white matter on being cut exhibited the large open orifices of numerous and apparently empty vessels; substance generally was somewhat softer than usual; the whole brain was minutely sliced, but no spot of pulpy softening nor any old nor recent hæmorrhage could be discovered; the cerebellum was softer than the brain, but not more in one portion than another. All the morbid appearances were more marked in the left than the right hemisphere; medulla oblongata healthy. The basilar artery to the extent of a quarter of an inch was almost, if not altogether, closed by a plug of laminated fibrine; this did not adhere intimately to its inner membrane; the coats of the vessel were thickened and opake, and of a dull white colour at this point; the fibrine whitish, firm, rather brittle, and more like contents of an aneurismal sac than recent fibrine. In other parts the vessels seemed healthy.

Chest.—No fluid in the pericardium; much fat under it; heart full sized; endocardium in left ventricle rather thickened; aortic and mitral valves healthy; commencement of aorta thickened considerably by a deposit under the lining membrane, giving the surface of this part a roughish character; right ventricle and auricle normal; cavities did not contain much blood, that in auricles mostly fluid; right auricle not distended; a small fibrinous coagulum in the right ventricle.

Lungs were not cut into, but appeared healthy.

Liver contains much blood, but was otherwise healthy; rest of the body not examined, the inspection having been made at the residence of the patient, and in the presence of his friends.

Clinical Remarks.

Symptoms and Diagnosis.—For practical purposes, cases of paralysis may be usefully divided into two classes; those accompanied with coma, including many of the apoplectic cases, and those not accompanied with coma. The case of Knight belonged to the latter class. The paralysis was instantaneous and complete, but the intellect was never for a moment clouded.

These symptoms at once distinguished the case from the apoplexy of *nosologists*, that is, a certain assemblage of symptoms of which coma is, necessarily, one; and they rendered it all but certain that it was not the apoplexy of certain *pathologists*, who apply the term to an effusion of blood into any organ, and without any reference to the attending symptoms. The *sudden* effusion of

a *considerable quantity* of blood into the brain must compress that organ very considerably, and is almost invariably followed immediately by coma. This rule, however, although a very general one, is, like perhaps every other in the symptomatology of diseases of the brain, liable to occasional exceptions.

Andral has recorded a case of sudden hemiplegia without loss of consciousness, and the subject of which died, after six weeks, from organic disease of the heart. The only morbid appearance in the brain was a clot of blood, the size of a large cherry, in the optic thalamus; but even in this case it is to be observed that the hæmorrhage was not *very considerable*. The lecturer had also seen several cases of cerebral hæmorrhage to an equal amount without loss of consciousness, but then the coagulum was found in the middle of a softened portion of cerebral substance. In these cases we may suppose that the softening had *preceded* the hæmorrhage, and given rise to it, and that it might have in some degree *made room for it*, so that the essential feature of such cases, viz., compression, might be almost or altogether wanting. If the absence of coma indicate in the above circumstances the general absence of hæmorrhage, the converse of this rule, it is scarcely necessary to observe, by no means holds good. The presence of coma may arise from a great variety of causes; for example, from exhaustion, syncope, serous effusion, and many others, and cannot, therefore, be regarded as a *distinctive* sign of hæmorrhage.

Having thus excluded sanguineous effusion from amongst the causes of the symptoms, to what others can they be ascribed? They might depend upon several,—an osseous growth within the cranium; fibrous or other tumours of the dura mater; cancerous, tubercular, or other tumours in the brain; an encysted abscess; meningitis with serous effusion; ramolissement of the brain, and others.

The great suddenness and completeness of the paralysis, and the absence of any marked fever, and of delirium, or other disturbance of the intellect, militated strongly against the supposition of its being meningitis only. The conclusion adopted was, that it was most likely to be inflammation of the substance of the brain, which had ended in softening, and that this inflammation might or might not have been excited by one or other of the foreign growths above enumerated. That the disease was inflammatory was almost certain. The patint had had inflammation of the brain nine years before, and had suffered from headach very frequently since. He was plethoric, had been relieved by cupping, and was in the prime of life, much below the age at which ramolissement from other causes than inflammation usually occurs. On his admission he had no headach, but the pain from which he *had* suffered had been chiefly felt on *one* side of the head—that opposite to the paralysed limbs. This is the character of the pain in ramolissement; it is very often limited not only to the hemisphere affected, but to a surface not exceeding the extent of the disease; there were also pains in the paralysed limbs to which a considerable diagnostic value is attached by Rostan; but there was neither rigidity nor convulsions of the affected members: symptoms when present of great value in the diagnosis of this form of disease, but which are absent also in a great proportion of cases.

The sudden occurrence of hemiplegia, without any loss of consciousness, arises much more frequently from softening than from any other disease of the brain. This is one of the leading points of difference between apoplexy and hæmorrhage into the brain and softening of the cerebral substance. In the first coma occurs at the moment of the attack; in the last it is *generally* amongst the latest symptoms which supervene during the progress of the disease. This difference is mentioned by Rostan, and long before I was acquainted with his opinion I had observed it, and was in the habit of stating it in this hospital.

Loss of consciousness may, however, occur amongst the early symptoms of softening, but such cases are rather exceptional ones, and *usually* indicate that the disease occupies a considerable extent of the brain. In reference to the treatment, however, the point of chief consequence was the inflammatory nature of the attack; and this could scarcely be doubted, notwithstanding the absence of any considerable pyrexia, and of all local symptoms except giddiness. When pathological anatomy was less cultivated, and those organs alone were examined after death which were supposed during life to be diseased, we were but little acquainted with other forms of inflammation than those which are accompanied with symptoms of rather considerable severity; but since the more extensive adoption of the practice of ascertaining the condition of *all* the functions during life, and of *all* the organs after death, we have become familiarised with the fact, that even severe and acute inflammation may occur in almost any organ, with few symptoms, or none at all, to direct attention to it during life. Such was the view taken of the case—we shall see subsequently how far it was confirmed after the patient's death.

The severity of the paralysis was shown by its affecting both sensation and motion; deglutition was also impeded; and the sphincters of the bladder and rectum were paralysed. The loss of sensation was very temporary, and, as well as the impaired deglutition, had ceased before his admission. The evacuations were passed into the bed,

but not without consciousness. He was perfectly aware of what was taking place, but could not prevent it. The pulse appeared rather feebler in the sound than the paralysed arm, and the temperature of the paralysed side was a little lower than the other. During his stay in the hospital reflex movements frequently occurred in the right leg and arm, especially, as the patient stated, without being asked, when he happened to yawn. The mere imitation of the act of yawning, however, did not excite them; and Dr. T. never succeeded in producing them by pinching or tickling the foot. At a later period his wife excited them by tickling the sole of the foot. Another symptom supervened in the progress of the case, namely, a disposition to laugh immoderately, with little or no reason to do so. This laughter appears to be quite involuntary, and is a common feature in diseases of the brain. He (Dr. T.) remembered a woman affected with hemiplegia applying at the hospital for admission: she was scarcely able to give any history of her disease from the interruption occasioned by violent and uncontrollable fits of laughter.

Prognosis.—The prognosis given at first was unfavourable, as it respected the return of the power of motion. From the extent and completeness of the paralysis, it was probable that the substance of the brain had been extensively and irreparably injured. In respect to the life of the patient, the prognosis was more favourable, but still doubtful. We could not be certain of the precise nature of the lesion of the brain, there might be some foreign growth tending to increase; and if it were only simple softening it was liable to increase to an indefinite extent.

Treatment.—The treatment was antiphlogistic, but not very active. Neither the strength of the pulse nor the character of the other symptoms appeared to call for, or even to warrant, any large abstractions of blood. He was cupped on the left temple (the principal seat of the pain which had existed) to ten ounces, and subsequently at the nape of the neck. He took calomel until his mouth became sore, and croton oil occasionally, for the bowels were constipated, notwithstanding the paralysis of the sphincter ani.

After the mouth became sore he was put upon a course of iodide of potassium. This was administered not merely with a view of promoting the absorption of any effusion that *might* exist within the head, but for the purpose of aiding in the removal of any chronic inflammation. We know that it has the power of controlling certain inflammations; for instance, chronic, or even subacute rheumatism, syphilitic inflammation, and ulceration of the throat and other parts, and also various cutaneous diseases; and he (Dr. T.) thought he had seen it useful in other chronic inflammatory affections. This treatment was persisted in until the time of his discharge, December 13, about six weeks from his admission. During this time he improved considerably in some respects. The right pupil regained its ordinary size, and his sight improved. He regained the power of speech to a considerable extent, and could protrude his tongue readily: he could retain and pass his urine and stools at will, but the power of moving his limbs remained essentially unaltered.

On his return home, finding his appetite very good, he indulged it more than he had been allowed to do in the hospital, and the giddiness soon returned. This was relieved temporarily by cupping; but about a fortnight after, without feeling worse than usual, he *suddenly* expired, his intellect being perfectly clear to the last minute.

Morbid Appearances in connexion with the Symptoms.

The appearances after death were partly such as had been anticipated, and partly others. The most prominent were those indicating inflammation of the arachnoid, and consisted of thickening, opacity, and rather copious serous effusions.

The serous effusion must be presumed to have occurred in the present illness, for it cannot be supposed to have existed from the time of the first attack, nine years ago. Two views may be taken of the mode of production of these changes,—First, we may suppose the thickening and opacity of the arachnoid to be the remains of a *previous* arachnitis, and that the last illness consisted simply of sanguineous congestion within the head, which had terminated in the production of a serous effusion, constituting one form of what has been called serous apoplexy. The large open mouths of empty vessels in the white matter of the brain appeared to show that congestion *had* existed; and the empty condition of these vessels, and the general paleness of the white matter, might be a mechanical effect resulting from the compression of the brain by effused serum.

Secondly. We might suppose the arachnitis as well as the serous effusion to have been recent: I am disposed to think there had been at least *some* recent meningitis, from the obvious changes in the colour and consistency of the grey matter. Assuming this view to be correct, it is interesting to remark, first, the absence of any *marked* fever or pain in the head, the chief local symptom being giddiness. He had suffered from some headach during the last nine years, but it was only occasional, and not constant. Second. The strict limitation of the paralysis to one side of the body, the disease of the brain being *almost equal* on both sides. It was, however, *rather* greater on the side opposite to the paralysis. Third. The *suddenness* of the attack of hemiplegia

and the *absence of coma*. The attack was almost as instantaneous as if it had been caused by cerebral hæmorrhage. This is seldom the case in meningitis, and was the reason which led the lecturer to suppose the symptoms to depend on softening. He still thought it probable that this sudden paralysis depended on softening of the substance of the brain. Paralysis in meningitis must necessarily depend on some concomitant lesion of the brain itself, either from compression or actually coexisting inflammation. A large proportion of the grey matter in this case was softened, and some portions much more so than others. If the paralysis had depended on the effusion alone, we should probably have had a loss of consciousness at the same time. Andral mentions the sudden occurrence of paralysis in meningitis with rapid serous effusion; but, as far as the lecturer remembers, there was an abolition of consciousness at the same time: they were cases resembling genuine apoplexy. Fourth. Some writers believe that meningitis of the upper surface of the hemispheres is generally attended with delirium, that of the base by convulsions; and others, again, believe the grey matter to be the special seat of the mental functions. Both these opinions are opposed to the facts in this case. The meningitis was limited to the upper surface (and perhaps the ventricles), yet there was never any delirium. The grey matter was that especially diseased, yet the mind was perfectly unclouded to the last. His memory and other faculties appeared perfectly clear and entire. Fifth. Whether the disease in the basilar artery could have had any influence in the production of the symptoms it is difficult to say. The carotids were not examined; if they were pervious, it is fair to presume that the closure of the basilar could not be very important. Sixth. The mode of death is another feature of this case worth noticing. Apoplexy, and most other rapidly-fatal diseases of the brain, *generally* destroy life by producing asphyxia. In such cases the respiration is not usually suspended *suddenly*—it is commonly at first laborious, slow, stertorous, and the difficulty gradually increases until it finally ceases, and life becomes extinct; this, therefore, is a process which commonly takes some time, a few hours or more. Instantaneous death is generally found, when duly inquired into, to depend upon disease of the heart, or upon some other cause which suddenly suspends the heart's action.

Death from disease of the *brain*, however, is *sometimes* sudden. Andral has given such cases. In our case there was no disease of the heart to account for death, which yet was *instantaneous*. But the series of changes ending in sudden death in this case would appear to have *commenced* in the brain, for the first complaint made by the patient was, that he felt a heaviness in his limbs. The appearances in the heart were those of syncope rather than of asphyxia; the blood in its cavities was rather below the average quantity. It seems, then, probable that rapidly-fatal disease of the brain may induce death in two ways, by asphyxia and by syncope. We know that in experiments upon animals, crushing and other severe injuries of the brain will suspend the heart's action—in various diseases of the brain the action of the heart is seriously interfered with, the pulse often becoming exceedingly slow; there is nothing unlikely, therefore, in the supposition which appears to be suggested by such facts as occurred in the case before us, that in some diseases of the brain the heart's action suddenly ceases, and death occurs by syncope.

THE

PHYSIOLOGY AND PATHOLOGY

OF

THE SALIVA.

By Samuel Wright, M.D. Edin., F.S.A., Physician to the Birmingham General Dispensary, &c. &c.

DERIVATION OF THE WORD SALIVA.

The term *saliva* is employed to distinguish a peculiar fluid which is secreted by the sublingual, submaxillary, and parotid glands.

According to Baglivi (De Fibr. Motric., p. 203,) this word is derived from *sal*, salt; either because it sometimes approaches in taste to salt, or abounds in salt, or communicates its salt to the chyle and the blood, by which it promotes and excites the vital fermentations, and preserves and cherishes life. Zwinger (Fasicul. Dissertat. Medic., Diss. viii., p. 361,) accounts for its derivation from the same root, because salts of various kinds are separable from saliva by chemical resolution. We are told by Hoffmann (Disput. de Saliva et ejus Morbis), "Resp. Hoyer." (cap. i., p. 5), and in "Bibliotheca Romana," that it was formerly written salivia; and Tackius (Script. Phas. Sophic., part ii., Chrysogon., p. 16,) says the name appears to be a corruption of the Greek word σαλευω, "which signifies a flowing, as in a frothy sea." According to other authorities the word is derived, *a salvando*, because this salvia, or saliva, cures many diseases; or, *a saliendo*, because it flows into the cavity of the mouth from many little salivary tubes, or leaps, like a fountain, between the jaws; vid. Joseph Lanzon (De Saliva, cap. i., p. 1). Gurisch says (Consid. Physico-Medico-Forensis de Saliva Humana. Lipsiæ, 1729), "Græce vocatur σιαλον item σιαλις quod nonnulli a σιω poetice, etiam σιω concutio, moveo, moto, derivant. Alii απο του αλος, *a sale*, vel

απο της αλος, *a mari*, quod salsum est deducunt. Ab hoc græco vocabulo σιαλος vel σιαλον quidam autores per literarum transpositionem latinum vocabulum, saliva fieri statuunt; cur autem latinum vocabulum, saliva, non potius a latino itidem salis nomine derivari debeat, non video. Quandoque etiam tam latinum vocabulum saliva, quam græcum σιαλον indiscriminatim etiam sumitur pro sputo seu sputamine, quod alias græce vocatur πτυαλον item πτυσμα a πτυω spuo;" vide Joh. Gorræi (Definit. suo loco); Christian. Beckmann (De Origin. Lat. Ling., p. 953); Joh. Paucrat. Brunon. (Castell. renov. seu Lexic. Medic., p. 1022. 1077); Hier. Mercurial. (De Excrement., lib. iii., cap. iii., p. 193.) The word is probably derived both from the Greek and the Latin languages—the one being expressive of the manner in which the fluid is secreted and discharged, the other bearing an allusion to its saline constituents. Hence the Irish term silim, which signifies to drop or to distil; and the Welsh haliw, from hâl, salt.

By many of the ancient philosophers and physicians the salivary fluid was believed to be excrementitious in its nature, and the terms saliva and sputum were used synonymously. Hier. Mercurialis (De Excrement., lib. iii., cap. iii., p. 195,) was of this opinion, and maintained that those who spit out enjoy good health, because they prevent the saliva from going into the stomach and injuring it. A similar notion was entertained by Blancardus (Oper. Med., tom. i., p. 212, Institut. Med., cap. vii.,) and by others. Those who professed to distinguish between the two, described the sputum as "viscid and thick," and the saliva as "thin, watery, saline, and acid." Charleton (Exercit. de Œcon. Animal., ex. vii., § vi., p. 127); Brœchusius (Ration. Philosophico-Medic., cap. xix., p. 231.) *Healthy* saliva may always be distinguished from other animal fluids by the presence of sulpho-cyanogen, as suggested by Dr. Golding Bird, and by another very characteristic constituent, denominated by Berzelius ptyalin. But in certain forms of *diseased* saliva, as I shall have occasion hereafter to prove, either or both of these ingredients, proper to the healthy secretion, may be absent; in which case our only evidence of the fluid being salivary is, according to Wedelius, to be founded upon the fact of its having been secreted by the salivary glands. (Physiolog., sec. iii., cap. xxiii., p. 174.) Diemerbroc suggests a similar mode of distinction. (Anat., lib. iii., cap. xxiv., fol. 436.) Hence the term *saliva* is applied solely to the secretion furnished by the salivary apparatus; whilst the word *sputum* is used conventionally to designate any mucous fluid discharged by spitting, from the lining membrane of the mouth, fauces, bronchi, or lungs. This distinction, however, is to be admired more for its technical convenience than for its pathological accuracy; for, when one or more constituents are observed to be *peculiar* to a *healthy* secretion, and to be *invariably present in it*, they may be regarded as *essential* to that secretion, and as the chief or the entire contributors to its physiological action; and conversely, their absence, *which must always involve other pathological conditions*, may be esteemed as decisive of such a change in the nature of the secretion as to require for it a distinct term, denominative of its character or composition. Thus, some of the varieties of diseased saliva, upon which I shall hereafter dwell, will be found to differ so materially from the secretion in its healthy state, and to have such widely different properties, as to deserve rather to be considered *excretions*, and to be so designated, than to preserve a name which assigns to them a place amongst fluids contributory to digestion and assimilation. But for the sake of arrangement, I shall classify them in the list of salivary secretions, from the fact that they are *discharged* by the salivary glands.

CHEMICAL HISTORY, PROPERTIES, AND COMPOSITION OF THE SALIVA.

Chemical History.—Sylvius (Disput. Med. 1, § 24, Oper., fol. 2,) believed the saliva to consist of an abundance of water, with a little salt and spirit. Kœperus (Disp. de Salivat. Critic., cap. i., p. 3, et seq.) imagined it to be composed entirely of lymph, for having evaporated it to dryness, he was able to detect little or no residue. Neuter (Physiol., cap. xxiv., p. 156,) supposed it to consist of water, saline matter, and some volatile ingredients. By evaporation, he obtained from an ounce of saliva three grains of saline matter, which, though very acrid, did not impart the proper salivary taste when diluted with much water. Hoffmann (Fundament. Medicin., cap. v., p. 26,) says, its components are chiefly serous acid particles and subtle animal spirits. Viridetus (De Prim. Coction., part i., cap. viii., p. 57,) after many experimental investigations, concluded that its only ingredients are water, sulphur, and an acid salt. Lentilius (De Hydrophob. Causis., p. 27,) states, that it consists of many saline particles, more or less volatile in different subjects, but inclining to fixidity, because of an occult acid. Theod. Craan (De Hom., cap. iv., p. 10,) believed it to be composed of water, with some saline ingredients. Waldschmid (Institut. Med. Rat., lib. i., cap. iii., p. 15,) observes,—"Although the saliva appears to be insipid, yet it possesses many volatile, acid, and saline particles." Targirus (Medicin. Compend., cap. xii., p. 123,) says, "The saliva contains particles both acid and saline, fixed and volatile, together with oily, acrid corpuscules." Heinsius (De Purgant. in Febrile,) declares the saliva to be "lymph, impregnated with volatile, saline, and acid

particles." Verduc (Suite de Pathologie de Chirurgie, cap. xvii., p. 776,) remarks, "La salive est une liqueur composée de particules alkalines, huileuses, et d'un peu de sel acide." Dolœus (Encyclop. Chirur., lib. i., cap. xx., p. 491,) says that it abounds with an acid spirit and an alkali. Bellefontaine (Med. Dogmat., Part. Physiolog., Exerc. vii., p. 26,) believed it to consist of volatile acid and alkaline particles, with an abundance of water. Ettmuller (Oper. Med., vol. i., fol. 88,) says it contains an ammoniacal salt. Camerar. (Medicin. Conciliatric., cap. iv., p. 85,) supposed its saline matter to be composed of an acid united to a volatile alkali. Tackius (Triplic. Phas. Soph. Chrysogon. Animal et Mineral, p. 16,) imagined that, in addition to its salts, the saliva contains a volatile spirit. Overcamp (Œconom. Animal., cap. ii., p. 31,) thought that by this spirit the saliva cures impetigo and scabies. Marggravius (Prodrom. Medicin. Pract., sect. iii., tab. xiv., p. 134,) says, "Salivam omnem ortum habere partim ex sanguinis parte magis glutinose, per arterias, partim ex spiritubus animalibus per nervos ad glandulas conglomeratas dictas deductis." Muraltus (Colleg. Anat., p. 73,) supposed that the frothiness of the saliva depends upon the quantity of spirit in it. Johremius (Disp. de Christo Medic., cap. ii., § 10, p. 42,) says, "It appears from physiological principles and chemical experiments, that the saliva consists, for the most part, of a spirituous lymph, that abounds in sulphureous, aqueous, saline, and alkaline particles; hence its value as a discutient." Paulus Ammannus (Parœnes, lib. i., cap. x., p. 72,) believed that the saliva contains an abundance of animal spirit, imparting to it an energy, and enabling it to promote the digestion of alimentary matter. Langonus (Exercit. de Saliv. Hum., p. 15,) observes, "The saliva is a human menstruum, or microcosmic solvent, for all esculent matters; and this energy it derives from a salt which abounds in it, and from some aerial particles which, in a specific manner, are contained in it." Hoffmann (Dissert. de Necessar. Saliv. Inspect., § 2, p. 5,) suspected the saliva to contain an animal spirit, from the fact that it can endure an intense cold without freezing. Rœperus (Disput. de Salivat. Critic. in Morb. Acut. et Chronic., cap. i., p. 8,) repeated the experiments of Hoffmann, and arrived at the same conclusion with him. Aloysius a Fabra (De Nutrit., cap. xiv.,) supposed the saliva to abound in "spirituous or aerial particles;" and Guilelminus (Exercit. de Sanguin. Nat., p. 102,) says, "Saliva, glutinoso liquore, multis salibus solutis, præcipue tartareis, imprægnato, multo aere componitur."

From this passage, and from many of the preceding ones, it will be evident that the notions which the older authors entertained concerning the presence of animal spirit in the saliva, were chiefly derived from the fact of its occasional impregnation by carbonic acid gas and atmospheric air; whilst their discrepant opinions in respect of its further composition, were the result either of idle speculation, or of their having examined the fluid in its morbid as well as in its healthy states.

Chemical Properties.—In this paragraph I shall treat of the chemical habitudes of *pure saliva*, understanding as such that which is furnished by the salivary glands of a *healthy* individual, after a fast of about three hours.*

In this, as in all other departments of my subject, I shall be most scrupulous in giving to every authority the credit due to his observations. Experiments and opinions not my own will be characterised, each by a distinct reference; and where no such reference exists, it is to be understood that the statements are made upon my own responsibility: and, for the manifestation of any personal confidence, I may be permitted to plead in apology the fact of having been anxiously and industriously engaged for nearly four years in the investigation of my subject, during which time I have examined many gallons of saliva, and have conducted my observations upon more than five thousand individuals.

Pure saliva is a limpid fluid, having a faint blue tinge, and a slight degree of viscidity. It is perfectly uniform in consistence, and unobscured by frothiness or flocculi. It possesses a faint, sickly odour, *sui generis*, due to its constituent *ptyalin*: this

* By moving the lower jaw and the tongue, as in the ordinary way of procuring saliva, this fluid necessarily becomes united with some mucus from the lining membrane of the mouth. For accurate investigation, it is requisite to obviate this intermixture, and it is best effected, according to my own observation, in the following way. The mouth should first be washed with cold water, and then, having depressed and fixed the lower jaw, the fauces are to be tickled with a feather, sufficiently to excite nausea, without the risk of vomiting. The saliva will sometimes run from the mouth in a stream, and generally it may be obtained in sufficient quantity for examination, and free from extraneous matter.† A little Cayenne pepper, or any similar irritant, applied to the sublingual gland, will excite an abundant secretion; but, as I shall hereafter prove, the saliva obtained by these means contains more than its natural proportion of free alkali.

† "Quoque facile deduci potest ratio, quare sub nausea et instante vomitu fluat abundantius saliva ex ore, quam etiam Hippocrates et Galenus præcedere tradiderunt." Roper et Gasto de Salivatione Critica, Ext. in Haller. Disp., tom. i., p. 453.

odour is strengthened by heat, and by most acids, but alkalies diminish and destroy it. Some authors deny that it has either colour or smell. "Coloris et odoris expers." Plenck (Hygrologia Corporis Humani, Vien., 1794, p. 57); Haller (Elem. Phys., vol. vi., p. 52); Thomson (System of Chemistry, vol. iv., p. 515); Johnson, Ann. Chem., i., 237.)

Most writers upon the subject have also denied that saliva possesses any taste. Hieron. Mercurial. (De Excrement., lib. iii., cap. iii., p. 194,) says, "Ante omnia scire oportet, salivam, quæ naturalis est, et in homine vere sano reperitur, eas habere conditiones, ut nec quantitate excedat, neque ullum saporem habeat." Melchior, Sebiz (Specul. Med. Pract., tom. i., part ii.,sect. iv., cap. xxvii., p. 577,) declares that healthy saliva has no more taste than water. Jacob, Primerosius (Enchirid. Med., p. 152,) says that "it is insipid, and perfectly free from taste." Sylvius (De Method. Medend., cap. ix., § vii., p. 49, fol.) and Boerhaave (Instit. Med., § xliv., p. 16,) entertained a similar opinion; as also did Diemerbroc (Anat., lib. iii., cap. xxiv., fol. 435,) and Tauvry (Anat. Nov. Rat., part i., cap. i.,) Zuingerus (Fasicul. Dissert. Medic. Disp., viii., de Saliv. Stat., part i., § ii., p. 365,) says, "Saliva tenuis, limpidus, et insipidus humor." Hoffmann (Dissert. de Necessar. Saliv. Inspect., § ii., p. 4,) observes, "The saliva is a limpid, insipid, very active fluid." Langonus (De Saliv., cap. i., p. 9,) remarks, "The saliva is thicker than lymph, and manifestly insipid." A writer in the "Journal de Scavans (tom. iv., An. 1676, p. 196,) says, "La salive doit etre naturellement insipide, a fin que le palais et la langue puissent juger sainement de leur objet sans aucune preoccupation." Elsmerus (vid. M. N. C. Dec. 1, An. 1, Obs. 57, p. 155,) was of opinion, that if lymph and saliva were analysed, no difference could be discovered between them. Waldschmied (Instit. Med., cap. iii., p. 15,) says, "The saliva is insipid, although it contains volatile, acid, and saline particles." Jacob. de Sandris (De Sanguin. Stat., cap. iii., p. 69), Haller (Elem. Phys., vol. vi., p. 52), and others, were firmly of opinion that healthy saliva is entirely devoid of taste.

An individual in *good health* can discover no taste in *his own saliva* immediately after its secretion; in such case it is *perfectly tasteless*. Hence, says Boerhaave, with his usual sagacity, "Saliva sani hominis, *propriæ linguæ* est insipida." (Prælec. Acad., 1742, tom. i., p. 177.) A wise provision, without which we should have been incapable of recognising the pure flavour of other bodies. But if one person apply the saliva of *another* to his tongue, he will discover in it a sharp, saline, and slightly astringent taste. In this acceptation, it possesses *decided sapidity*. Though it was denied by Nuck, who, of all the authors that have written upon the saliva, has alone mentioned the testing of its flavour after its evacuation from the mouth: "Saliva vitro excepta per diem si reservetur, insipidam (quatenus lingua dignoscimus) eam percipimus inodoram, viscidam, parum turbidam, et instar seri lactis." (Sialographia, p. 41.) Nuck, however, was in error; for a man may hold his own saliva in his mouth until it imparts a distinct flavour to his tongue; and this flavour is rendered still more conspicuous by spitting the saliva into any vessel, and tasting it shortly afterwards. When examined microscopically, the saliva is found to consist of globules. This fact was first recorded in the "Philosophical Transactions" for 1674, No. 106, p. 21. It has been since noticed by Asche, (De Globul., p. 62—68,) Weber, Tiedemann, and Müller. (Baly's Müller, p. 513.) According to Weber they are transparent, and larger than the red particles of the blood. Treviranus says he never was able to discover them. (Tiedemann et Gmelin. Rech. sur la Digestion, p. 6.)*

The specific gravity of saliva has been variously stated. According to Haller, it is to water as 1960 to 1875. Water being regarded as unity, Lamure estimated the saliva at 1.119, Siebold at 1.080, Hamberger at 1.015, Thomson at 1.0038, Tiedemann and Gmelin at 1.0043, and Mitscherlich at 1.0061 and 1.0088. During a meal, it was usually 1.0074. The following results were obtained by Dr. Golding Bird in a series of experiments upon the sp. gr. of saliva (Lond. Medical Gazette, July 2, 1841, No. 41, p. 756):—

Saliva from a healthy individual,	1.0091
Saliva excited by masticating caoutchouc	1.0155
Saliva from mercurial ptyalism,	1.0043
" " "	1.0062
Saliva from ptyalism by creosote	1.0084
Saliva from ptyalism by chlorine	1.0062
Saliva from hysteric ptyalism..	1.0082

Mean density, 1.0081.

The saliva even of healthy people varies considerably in its specific gravity. It is always denser after a meal than during fasting; and generally denser in an evening than in the

* Even filtered saliva exhibits a decided globularity, as I have had an opportunity of observing through the splendid microscope of Powell, which I was permitted, by the kindness of my friend Dr. Blackiston, to use. This is a department of scientific inquiry with which I am but imperfectly familiar, and I will not, therefore, attempt either a detail or an explanation; but to those who are conversant with microscopical analysis, I would suggest the salivary fluid, in its various states, as a most interesting and important subject of investigation.

earlier part of the day. But the converse is usually the rule with dyspeptics. The saliva is commonly thickened by an abundant use of animal diet, by fatty food especially, and by oily fish. Oysters and vegetable diet produce an opposite effect. I tried the specific gravity of the saliva in a healthy man for a week, and found its extremes to be 1.0079 and 1.0085. I then kept him upon vegetable diet and water for a week, during which time the lowest sp. gr. of his saliva was 1.0039 and the highest 1.0047. Throughout the following week he took nothing but animal food and water, with four ounces of bread daily; and the extremes in the sp. gr. of his saliva were 1.0098 and 1.0176. All alcoholic stimulants have a tendency to thicken the saliva, and in large quantities they not only alter its consistence, but materially diminish its activity. Moral emotions, variations in the state of the weather, electrical conditions of the atmosphere, light, sound, and other contingent circumstances, exert a remarkable influence upon the secretion of saliva, and also upon its specific gravity. Hence the difficulty of making accurate observations concerning it. In two hundred experiments, which I conducted with all possible care, upon healthy individuals, I found the highest specific gravity of the saliva to be 1.0089, and the lowest 1.0069: the mean, consequently, would be 1.0079. When the specific gravity of the saliva is above 1.0100, or below 1.0030, the secretion may be considered to be morbid.

Authors have differed to a great extent in their opinions concerning the reaction of healthy saliva upon test paper. Hoffmann believed it to be acid. (Fundament. Medic., cap. v., p. 26.) A similar opinion was entertained by Viridetus, (De Prim. Coction., part i., cap. viii., p. 57,) Lentilius, (De Hydrophob. Caus., p. 27,) Heinsius, (Tr. de Lue Venerea, cap. ii., p. 62, et seq.) Dionysius, (Anat. Demonstr., iv., p. 154,) and others. Tschirnhausen (Medic. Corpor., p. 23,) says that the saliva is rendered acid by fasting. Having abstained from food for three days, his own saliva became very acrid, and was a source of much uneasiness to his mouth. (See Galen, De Nat. Facult., ii., cap. viii., and Lister, De Humor., cap. xii.) Boerhaave (Prælect., p. 140,) mentions the acridity of fasting saliva: "Qui per religionem diutina jejunia observare tenentur, iis olet anima, et saliva exspuitur fœtida, acris, quæ gingivas erodet." Schultz says that the saliva is rendered acid by long retention in the mouth; but that it is always alkaline in children. Neither of these statements is correct. He observes also, that in the adult subject the saliva is generally alkaline; one drachm of it requiring a drop of acetic acid for neutralisation. Vaterus believed the saliva to be alkaline in its healthy condition. (Physiol. Experiment., sect. vii., cap. xxv., p. 163.) Barchusen detected free alkali in it. (Acroamat. Experiment., viii., p. 364—374.) Lang denies that saliva is ever acid. (Physiol., p. 81; see also Pauli, in Horne de Microcosm., p. 45, and Astruc de Digest., p. 267, et seq.) Tiedemann and Gmelin say, "Les indications des physiologistes sur ce point s'éloignent beaucoup les unes des autres. Duverney (Hist. de l'Acad. des Sc. de Paris, depuis 1656, jusqu' en 1699, tom. ii., p. 23,) qui a examiné la salive d'individus d'âges différens, trouva que celle des jeunes-gens ne rougissait pas la teinture de tournesol, tandisque celle des personnes âgées la colorait en rouge. La salive de soujets atteints du scorbut rougissait également cette teinture. Vieussens (Traité des Liqueurs, p. 160,) et Viridet (De Prima Coctione, p. 170,) pretendent avoir observé que la salive, soit des jeunes-gens, soit des personnes âgées, rougit en tout temps la teinture de tournesol. Deidier assure, au contraire, qu' à jeun la salive réagit à la manière des alcalis. Suivant Haller, la salive n'altère pas la teinture de tournesol: Astruc, Fourcroy, et autres, ont aussi trouvé la salive neutre. Montegre (Expér. sur la Digestion, p. 28,) a fait la même remarque sur la sienne propre; mais il dit avoir connu des personnes dont la salive rougissait la teinture de tournesol. Nous avons essayé avec cette teinture, bleue et rouge, la salive recueillie sur environ quarante malades de notre hôpital, et dans ce nombre, il ne s'en est trouvé que deux, atteints, l'un d'une fièvre intermittente quotidienne, l'autre d'un abcès, chez lesquels elle réagit à la manière des acides." (Rech. sur la Digestion, p. 6, n.) According to Shall's experiments, the saliva contains a fixed alkali, and acts almost universally as an alkali upon test paper. (Lancet for 1835, 6, vol. i., p. 39.) In the experiments of Mitscherlich, which appear to have been conducted with much care and discretion, the saliva was usually found to be alkaline. One hundred grains of saliva, obtained from the parotid gland, required for neutralisation .223 of sulphuric acid, the quantity requisite for saturating .174 of free soda. In another trial, .196 grains of acid neutralised 100 grains of saliva, indicating the presence of .153 of free soda. "From a very elaborate and careful examination, 100 grains of parotid saliva of specific gravity 1.0075 were found to contain 0.494 grains of salive matter, consisting of a proportion of potass and soda, too considerable to be neutralised by the acids present; and supposing these existed in combination with potass as the stronger base .094 grains of potass and .024 of soda would be left unsaturated." (Golding Bird.) Saliva is sometimes neutral. "The reason why the secretion found in the mouth during fasting is so nearly neutral, as scarcely to affect the most delicate test paper, arises from its containing a considerable quantity of mucus, which I have elsewhere shown is generally alkaline; and hence the slightly

acid reaction proper to the very scanty secretion of the salivary glands during fasting, is neutralised by the alkaline condition of the mucus." (Golding Bird, loc. cit., p. 754.)

From my own observations, perhaps sufficiently numerous, conducted as well in different states of health as through varied stages of disease, I am disposed to the inference that *alkaline saliva* is *alone* capable of effectually answering the purpose peculiar to such fluid, in the functions of digestion and assimilation. The range of alkali in the healthy secretion is from .095 to .353 per cent.,* though the proportion may be morbidly increased, as I have satisfied myself by numerous experiments hereafter to be detailed, concerning the digestive properties of saliva; and I think it may be submitted as a rule that, if the alkalinity of the saliva shall exceed one per cent., the secretion may either be considered morbid in itself, or indicative of a morbid condition of the digestive organs. As I before stated, this fluid should be examined after a fast of three hours, for its proportion of alkali is always increased in healthy people during a meal, and for some time afterwards, if digestion be depraved, or tardy, from the presence of much fatty matter, vinegar, or alcohol, in the stomach. In these instances the saliva is generally alkaline in *proportion* to the *necessity* which exists in the stomach for the action of an alkali; and the temporary presence of the latter, even in undue quantity, is rather to be regarded as a sign of health than as a symptom of disease. Protracted fasting, such as for two or three days, often renders the saliva acid, because the system itself, and most of its secretions, become deranged:† in a moderate fast, of from six to twelve hours, the saliva may become *neutral*, but *it ought not to be acid*. From contingent circumstances, however, it may chance to redden litmus paper;* in which case the best mode of proving its fitness for digestion is to put a little spirit or pepper into the mouth, when the alkalinity will be restored if the secretion be healthy, but if depraved the acidity will continue. Neutrality should not suffice: the salivary glands, when not in disorder, invariably secrete a strongly alkaline saliva when excited by stimuli. I have known the proportion of alkali to be increased from .2 to 1.9 per cent. in a quarter of an hour by the local application of an irritant.

If saliva be heated, it not uncommonly acquires an acidity in a few minutes (Journ. de Physique, 1788, p. 214.)† This is chiefly the case with neutral saliva, but I have several times rendered the alkaline variety acid by an elevation of temperature. By boiling, saliva becomes frothy, and sometimes permanently so. This appearance is due to coagulated albumen, for if the clear fluid be separated, it will not froth conspicuously by subsequent ebullition, no coagulum will be formed, nor will there be any deposit after two or three days rest. To the albumen is also due the frothiness for which saliva is remarkable from long agitation: indeed, by this process all the *free* albumen may be separated without the aid of heat. If pure saliva be left at rest for two or three days, a glutinous-looking matter is deposited, and the fluid becomes much thinner in consistence, though it retains its viscidity:‡ if boiled, it froths very little, and the bubbles soon disappear; there is no deposit by further rest, nor on the addition of water. Filtration through paper also separates the free albumen as perfectly as boiling, agitation, or rest. To Dr. Bostock is due the merit of having discovered albumen in the saliva; and to Professor Brande that of having first separated it by galvanism (Philos. Trans. for 1809, part ii., p. 373). Schultz has singularly enough denied the presence of albumen in saliva (Gazette Medicale de Paris, Janvier 16, 1836).

There is a principle peculiar to saliva, which was discovered by Berzelius, and de-

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* In dogs, the proportion of alkali in the saliva varies from .151 to .653 per cent.; in sheep, from .087 to .261; in horses, from .098 to .513 (Leiste). I have met with only two instances of acid saliva in dogs; it is more common in sheep and pigs; but monkeys, in confinement, are more subject to it than any other animals. I have several times observed in dogs that the salivary secretion, which was previously strongly alkaline, became feebly alkaline, or neutral, *post coitum*. The saliva, both of man and animals, is generally increased in alkalinity by abstaining from sexual indulgence, and conversely.

† This observation only applies to the fasting of healthy people. I have known patients to take little else than water and medicinals for weeks together, without the saliva ever losing its characteristic alkalinity.

* In testing saliva, the indications of acid or alkaline reaction are often obscured by the quantity of mucus present: and, again, an increased proportion of carbonic acid gas in the saliva will redden litmus paper, though there may be no actual acidity. In either case, the question will be satisfactorily decided after the lapse of a few minutes.

† "Lento tempore si utaris, spirabit saliva aliquid leniter aciduli."—Boerhaave, Prælec., p. 143.

‡ This is not referrible to an absorption of oxygen, for a deposit is formed if saliva be exposed in a vacuum, or in gases which contain no oxygen.

scribed by him under the name of *ptyalin*.* He obtained it by the following process:—First. The saliva was evaporated to dryness, and the residue was then exhausted with alcohol; in this manner the osmazome, fatty matter, chlorides, and lactates, were removed. Secondly. The remaining solid matter being alkaline, it was neutralised by acetic acid, and the acetate of soda was subsequently extracted by a fresh proportion of alcohol. Thirdly. The dried residue was then acted upon with distilled water, which separated the *ptyalin*, (?) and left a remnant of animal mucus with earthy sulphates and phosphates. Of the *ptyalin* thus obtained, Berzelius says,—"La dissolution de cette matière dans l'eau est un peu consistante, et ne se trouble pas par l'ebullition. Après avoir été evaporée, elle laisse la matière salivaire incolore et transparente. Si alors on verse de l'eau sur cette dernière, elle devient d'abord blanche, opaque, et muqueuse, ensuite elle se dissout en un liquide clair, qui ne précipite ni par la teinture de noix de galle, le chlorure mercurique ou le sous-acétate plombique, ni par les acides forts, caractères qui distinguent cette substance d'un grand nombre d'autres matières animales."—(Traité de Chimie, Paris, 1833, tome vii., p. 156.)

The existence of *ptyalin*, as a distinct principle, has lately been denied by Dr. Golding Bird, whose observations, from their originality, and the high reputation of their author, merit considerable deference. This chemist remarks, "That portion of the extract of saliva which refuses to yield to the solvent action of alcohol, is by the action of water separated into a soluble and insoluble portion; the first being regarded as the peculiar matter of the saliva, the *ptyalin* of Berzelius; the latter as salivary mucus (speichelschleim of Mitscherlich). Of these the so-called salivary mucus resembles the matter precipitated from fresh saliva by exposure to the air, or the addition of an acid, and may be regarded as but slightly modified coagulated albumen, combined with a small quantity of saline matter. The other ingredient, *ptyalin*, affords an excellent illustration of the proximate ingredients of mucous secretions; for not only do Berzelius, Gmelin, Mitscherlich and Schultz, all of whom have most carefully examined its properties, and whose accuracy of observation is beyond all question, differ materially in their description of more than one of its chemical characters; but the three last-named philosophers have correctly stated, that each time a solution of ptyalin is evaporated, and the residue digested in water, a considerable quantity of, insoluble matter separates, formed, in fact by the process of desiccation, for which, as Gmelin has shown, the heat of a water-bath is sufficient. This observation, which is due to our talented countryman, Dr. Bostock, is very important, for it shows how little positive difference really exists between the principle dignified with the name of *ptyalin*, and the albuminous elements of other mucous secretions. This view receives still further confirmation from the results of the decomposing influence of the voltaic current on ptyalin, which I observed in the course of my researches on the action of such currents on albuminous fluids elsewhere recorded. Mr. Brande long ago showed, that when saliva was submitted to an electric current, a substance, in all respects analogous if not identical with albumen, separated at one of the electrodes, although the presence of this principle was not previously demonstrable. To ascertain which ingredient of saliva yielded this substance, I prepared some *ptyalin*, according to the process described by Berzelius, dissolved it in water, and exposed it to the 'couronne de tasses,' of thirty-six pairs, used in the experiments related in my papers on albumen. Coagulation ensued at both electrodes, but most copiously at the negative, where an odour of chlorine was evolved; and by no character whatever could the coagulated mass thus obtained be distinguished from albumen, with which, indeed, I cannot but believe it to be identical." (Lond. Med. Gaz., 1840, 1, No. 43, p. 643, 4.)

The observations of Dr. Golding Bird are correct as regards the production of a coagulum, by galvanism, in a solution of ptyalin obtained as above directed. But the coagulum is due not to the ptyalin, but to the albuminate of soda, which, along with a remnant of ptyalin, is removed by distilled water. The error of analysis, with all respect and deference I say it, is referrible to Berzelius, in closely following whom Dr. Bird has been led into an inaccuracy. The means which I employ for preparing a pure specimen of ptyalin are—First. To pass saliva through ordinary filtering paper,* and

* Tiedemann and Gmelin could scarcely recognise it in the saliva of the sheep.

* The filtering paper should be coarse, or the entire fluid part of saliva will not pass through it; and it is necessary that filtration be complete before exhausting the residue with æther, or this solvent will remove some lactate and sulphocyanide; both of which salts are soluble in the same menstrua as ptyalin, and therefore difficult of separation from it. Sometimes, in defiance of all care and precaution, a minute quantity of these saline constituents will trouble the ethereal solution, and the plan which I have found to be most effective in their removal is suggested by their relative solubility in water. Ptyalin is sparingly soluble in this fluid, and the process of solution is very slow. Sulphocyanide of potassium, on the contrary, is a deliquescent and very soluble salt, and lactate of potass still more so, for it is incapable

after filtration shall have been completed:—secondly, to exhaust the residue with sulphuric æther; the ethereal solution contains a fatty acid and ptyalin. It is to be allowed to evaporate spontaneously; and, thirdly, the residue left by evaporation is to be placed upon a filter, and acted upon by distilled water, which dissolves the ptyalin and leaves the fatty acid. If the aqueous solution be carefully evaporated to dryness, the "salivary matter" will be obtained in a pure state. Ptyalin, as thus prepared, is a yellowish-white, adhesive, and nearly solid matter, neither acid nor alkaline, readily soluble in æther, alcohol, and essential oils, and more sparingly soluble in water. It alone possesses the characteristic odour of saliva; it is unaffected by galvanism, and by most of the reagents which coagulate albumen; it is abundantly precipitated by sub-acetate of lead and by nitrate of silver; feebly so by acetate and nitrate of lead and tincture of galls, uninfluenced by bichloride of mercury and strong acids; the latter considerably heighten its proper odour and impair its solubility, whilst alkalies render it more soluble, and give it the smell of mucus. Moderate heat and oxygen gas also increase its odour; but intense heat or cold diminishes or entirely destroys it. At a suitable temperature ptyalin may be preserved for any length of time without risk of decomposition. The salivary fluid from which ptyalin has been removed by filtration, possesses a sickly mucous smell, decomposes much sooner than ordinary saliva, and in the process of decay invariably evolves ammonia. If this fluid be heated, the mucous smell will be increased until the evaporation shall have been continued nearly to dryness, when a slight salivary odour may be recognised, due to a portion of ptyalin being liberated from the mucus with which it was previously in combination.

Ptyalin may be regarded as the true source of salivary odour, though it does not impart any smell to a quantity of water equal to the saliva from which it was extracted. It is liable to much variation in quantity, colour, consistency, and smell; and though I have been unable, from experimental inquiry, to discover in it any special physiological activity, yet have I observed that its alteration, or its absence, is invariably characteristic of a depraved condition of the saliva; and (as I shall hereafter endeavour to prove) the various morbid states of this fluid being representative of disease in the system or in its secretions, the examination of the ptyalin may be advantageously suggested as an addition to our other means of diagnosis. The obligations of active and extensive practice of course unfit the physician for a minute inquiry into the pathology of animal secretions; but the process which I have submitted for the separation of ptyalin, requiring but little of either time or skill, the apology of engagement or unfitness can scarcely be received in exchange for neglecting this branch of professional inquiry; and for introducing a novelty into the department of diagnosis, I would repeat the words of an elegant writer, and say, "The proportion in which we multiply our means of accurate observation is directly indicative of our distance from empiricism and imposture." I shall consider the morbid varieties of ptyalin when discussing the pathology of saliva.

(To be continued.)

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of crystallisation; the plan, therefore, is to evaporate the ethereal solution to dryness, and if any sulphocyanide of potassium be present, it will crystallise in long needles, which, with the lactate of potass, will soon run into liquidity. If a few drops of distilled water be gently added, these saline matters will be removed, and the ptyalin left in a pure state. It is advisable that the water should not be long in contact with the ptyalin, lest any of it should be dissolved. After having poured off the water, the residue must be evaporated to dryness; and if it again deliquesce, it should be exhausted with water as before. One process, however, is generally sufficient.

REMARKS ON SOME

STATEMENTS IN MR. SAMPSON'S PAPERS

ON THE

APPLICATION OF PHRENOLOGY

TO THE

TREATMENT OF CRIMINALS,

LANCET, Nos. 18, 19.

To the Editor of THE LANCET.

SIR,—As Mr. Sampson's late papers on Phrenology in relation to Criminal Jurisprudence appear to me, and, I doubt not, to others of your readers, to contain statements not less dangerous than paradoxical, I trust you will allow me briefly to occupy your pages while endeavouring to prove that they are so; as it is desirable that through the same channel by which error (if error there be) is disseminated, the effects of that error should, if possible, be neutralised. I apprehend that a single argument which I shall bring to bear will, with persons accustomed to moral investigation and discussion, and to a study of the harmony and adaptation every where manifested in the intellectual constitution of man, furnish an irrefragable answer to Mr. Sampson's statements, and an insurmountable objection to some of the most fundamental doctrines of phrenology.

The general inference from Mr. Sampson's statements and reasonings is, that a man's propensity to crime is wholly or in a great

measure, so far as he himself is concerned, accidental and involuntary, and that he is no more responsible for the unfortunate tendency he may labour under to violence, excess, &c., than he is for a congenital bad habit of body, or for acquired disease in any organ.

Now, the simple and conclusive answer to such gratuitous and dangerous theory as this is, that had nature, in any case, constituted a man so as that he was unavoidably, because physically, prone to crime, and so as that the strength of his volition was not equal, as a counterpoise, to that of his passions or propensities, she would, *at the same time* (all analogy leads us to conclude), have withheld from him the *consciousness* of crime, and the sentiments of self-praise and self-blame. There would most evidently be gross incongruity and gross injustice in making a man sensible of the distinctions of good and evil, and perfectly aware when he was forsaking the one and abandoning himself to the other; yet, at the same time, sending him into the world with a congenital disability (dependent on physical conformation) of preferring the good and eschewing the evil. In no other part or arrangement of either the moral or physical creation do we observe any such monstrous and palpable inconsistency—any such manifest and notorious departure from harmonious adaptation. Now, as no person who has the slightest pretensions to candour or common sense will affirm that men, even the most criminal, ever lose their *consciousness* that they are acting criminally, or, at least, lose this consciousness in anything like the same proportion in which they may commit crime,—and this consciousness being the test and measure of a man's possession of volition in regard to his actions, and therefore of his responsibility,—and as (according to my former argument) it would be obviously an injustice and incongruity repugnant to all our ideas of harmonious adaptation in nature and equity in the Deity, that men should be responsible, if constituted congenitally, subject to the control of an original and physical necessity, it follows that Mr. Sampson's theory is ill founded; and that the influence which, as assumed by phrenologists, the brain exerts over the mind, though possibly it may exist in *some* degree, yet does not exist to the extent, nor, probably, operate in the manner which they suppose. This argument, which I shall not here seek further to illustrate or apply, will, I apprehend, if properly managed, be found to be conclusive against the chief, and, at the same time, the most improbable and dangerous doctrines of phrenology. It very directly proves the folly of modifying our jurisprudence in conformity with phrenology, as proposed by the abettors of that system, since it would be the last degree of absurdity for the laws to absolve a man of crime *whose own internal feelings charged him not only with being criminal, but with being voluntarily so.*

I shall conclude this paper with referring to three instances of what I shall call *pseudo-analogies:* two of which occur in Mr. Sampson's paper; the third in Mr. Combe's work on America.

First. Mr. Sampson seeks to establish an analogy between mental obliquity and bodily disease. "Why," he asks, "do we not treat irregularities of mind in the same way that we treat all other physical disorders?" Now, our simple reply is, that while moral error is accompanied with a *consciousness* on the part of the delinquent that he is doing wrong, bodily disease is accompanied with no such consciousness. This shows there is no analogy between the two cases, and destroys the argument which Mr. Sampson would seek to found on that supposed analogy as to the applicability of phrenology to jurisprudence.

Secondly. Mr. Sampson speaks of a morbid state or action of the brain as being a cause of moral error. Now, I would ask, does this morbid condition of the brain partake of the nature of any other *known* form of cerebral disease? It cannot do so, for it is accompanied with none of the ordinary signs of disease of the brain, the greatest criminals having their brains as sound, physically considered, as those of the most virtuous men. What, then, is the nature of this morbid state or action of the brain; or, rather, has it any existence? and is it not a mere figment of phrenologists?

Lastly. Mr. Combe gravely informs us, that when examining the head of a girl who, by an accident, had lost that part of the skull which covers the organs of self-esteem and love of approbation, he found, on applying his hand over these organs, and so guiding the conversations as to call the corresponding faculties into exercise, that "*vivid movements*" took place!!! *Oh! credat Judæus, sed non ego!* Perhaps a more striking instance of a man of acknowledged talent, being led into a hasty and laughably incorrect analogy, is not on record. We have no reason to believe that the *intensive* states of the brain (of which, indeed, we know nothing) have the slightest resemblance to those of *muscular* action, which must have been present in Mr. Combe's imagination when he saw or fancied he saw the phenomenon he relates; nor have we any reason for believing that the brain has any movements at all, save such as are communicated to it by the arteries directly, and indirectly by the effects of respiration on the arteries, or the cerebral vessels generally. I am, Sir, your obedient servant,

ROBERT DICK.

London, Feb. 18, 1842.

RADICAL CURE OF

PUERPERAL ASCITES,

BY

SPONTANEOUS EXUDATION

THROUGH THE

PARIETES OF THE ABDOMEN.

By J. Massey, Esq., Surgeon, Nottingham.

Nov. 17, 1841. Mrs. Lee, living in Nottingham, is thirty-nine years old, and the mother of three children; she is of a sallow complexion, but has always had good health; previous to her accouchement, which took place three months ago, she was troubled with cough, palpitation, dyspnœa, headach, scanty secretion of urine, with œdematous swellings of the lower limbs, and considerably more abdominal enlargement than on former occasions. Immediately after delivery the abdomen became enormously distended, and it was with much difficulty that she could move about in bed. She was admitted a patient under me at the General Dispensary; four days after her confinement she was visited by Dr. Taylor, the resident surgeon to that institution, who prescribed for her diuretic and cathartic medicines: I visited the case subsequently. She continued these remedies for about two months, which increased the secretion of urine and evacuated the bowels; still the tension and enlargement of the abdomen continued undiminished; paracentesis was considered advisable, which was delayed as a last resource. A few days afterwards, without any assignable cause, she began (to use her own phrase) to "sweat" so much about the abdomen during the night that she could wring the wet off her flannel petticoat: this was the case every night; and in order more effectually to keep herself dry, she wrapped round her body an additional quantity of flannel, but on the following morning they were invariably completely saturated with the moisture; no perspiration was in the least manifested in other parts of the body; the secretion of urine was not scanty, being little more than the usual quantity when in health. The purgative and diuretic medicines were continued. I very much regret that no analysis was ever made of the fluid.

25. It is now about a month since she perceived first the exudations from the abdomen; they have regularly continued, and there is a very considerable reduction in her circumference; a month ago her stays could not be laced, nor would they meet by twelve to fourteen inches; now they meet very easily; the secretion of urine continues free as before, and the bowels are open.

Dec. 4. Continues improving. Continue medicines.

14. She states that there has been much less "sweating about the bowels" the last two or three nights, and she has in consequence increased in size.

Jan. 14, 1842. She is now quite well; suckles her child, which is healthy, and follows her usual occupation as charwoman. I have briefly reported the above case, which is important: I make no further comments upon it, but leave it for the consideration of your numerous readers, to whom I shall be glad to communicate any further particulars, should they wish it, as the person still continues well, and at her usual occupation in this town.

Castle Gate, Nottingham,
Feb. 23, 1842.

TREATMENT

OF

DELIRIUM TREMENS

IN THE

CARNATIC BATTALION.

MEDICINES BY THE RECTUM.

To the Editor of The Lancet.

Sir,—With reference to the clinical observations of Professor Taylor, reported a few weeks since in The Lancet, on the subject of delirium tremens, and the every-day treatment of this affection, I would beg to be permitted to make a few remarks. Premising, that as surgeon of the Carnatic European Veteran Battalion, a charge that I held in India a few years ago, I have had very considerable experience in the treatment of this disease, inasmuch as that the constitution of that battalion is in this wise—the scum, for the most part, of all the effective corps in the service, every tippling and incorrigible fellow who, from the length of time he has been in and the claims he has upon the service, it would be unjust to discharge, and who otherwise is capable of duty, being transferred to this corps. There are exceptions, doubtless, of good men being thus transferred from debility, wounds, and the like; but these are rather the exceptions to than the character of those constituting this corps. Tipplers from the effective corps, on joining this, have but too frequent opportunities of indulging their propensity, seeing they are exempted from the daily drills and frequent parades of the effective service, and therefore not under the constant vigilance of their officers. Accordingly, despite the unwearied attention of the officer in command, they but too frequently become confirmed drunkards, and as the strength of this corps was about three hundred men during the period of my charge thereof, we were seldom without a case or two of delirium tremens in hospital; as I held this charge for nearly two years, I am warranted, I believe, in saying, that my ex-

perience in the treatment of this disease has been considerable. I may therefore be permitted to observe, that I do not acquiesce in the method of treatment generally inculcated and pursued in this disease, and which consists principally in the administration of opium, stimuli, and nutriment.

This was the practice of my predecessor in the charge of the C.E.V.B., and I pursued the same in assuming charge of the corps, but disappointment in the result and a few post-mortem examinations soon led me to alter my tactics and pursue a very different practice. The treatment named is unquestionably the appropriate one for the minor affection, of exhausted irritability succeeding to excess of excitement, characterised by damp skin, soft frequent pulse, giddiness, a sick stomach, tremor, and perhaps relaxed bowels; but it is not so of the sleepless, wandering, excited, maniacal unfortunates who constituted the majority of my patients. With such I found the secretions of the liver obstructed or deranged, the bowels for the most part torpid, and the brain congested; and that calomel, with an occasional purgative of the decoction of aloes, till the secretions were healthy, with evaporating lotions to the head, and a blister between the shoulders, and leeches to the temples when the eyes were blood-shot, and pupils contracted, or when pain in the head was complained of, and occasionally general bleeding, followed up in most cases with calomel and opium until gentle ptyalism was induced. This was the most successful treatment. And, with respect to diet, I found that consulting the inclination of the patient was the best index to what was most appropriate. As to his beverage, ginger-tea was in ordinary use; and a bottle or more of light beer, well up in bottle, during the twenty-four hours, in half-pint portions, was frequently allowed; and when further stimulation was required, the carbonate of ammonia in camphor julep was employed instead of the alcoholic beverages. With this practice I lost ten men out of a certain number of cases which I do not at this time remember, whilst my predecessor lost sixteen out of a much less number.

Whilst on the subject of delirium tremens, I may mention the case of a man, the subject of the disease, who, attempting suicide, had inflicted, with a piece of a broken bottle, a severe lacerated wound in the throat, involving the pharynx and trachea, and from which swallowing, from the inflammation which succeeded, was wholly impracticable; nor was it possible to introduce anything down the œsophagus by a flexible tube, the irritability of the parts allowing nothing to be brought in contact. This inflammatory irritability continuing many days, in despite of abundant leeching and every other expedient pursued to allay it, the patient was fast sinking from inanition, when recourse was had to injections per anum of warm milk and soup; six ounces of each were alternately administered every two hours: the amendment was immediate, and in a few hours he was quite out of danger; the wounds in the throat were soon after healed, and he had a rapid convalescence. Thus was this man treated without opium and stimulants. I mention this case, however, rather to prove how readily may life be sustained by this mode of administering nutriment to the system, and would suggest its more frequent employment in cases of gastritis, as well as in other diseases of the stomach and first passages.

The absorbing power of the rectum is not, I am of opinion, sufficiently appreciated. In many delicate states of the stomach and system it strikes me this would be a very eligible mode of administering medicines, whereby the offices of the stomach in digestion would not be interfered with. The absorbing power of the rectum is much more active than is generally supposed, as the following case will illustrate:—Suffering from an attack of sciatica, I was induced to try the effect of introducing a three-grain pill of opium into the rectum; the effect a few hours after was the full narcotic influence of the drug, sound sleep followed, and in the morning vertigo and sickness on every attempt to raise my head from the pillow; in short, the condition of exhausted irritability, the same precisely as is found succeeds to the intoxication of spirituous potations; an effect which I had never experienced from taking half that quantity into the stomach, which I had often done; and I doubt if I had swallowed the whole, whether the effect would have been greater. It becomes, indeed, a question in my mind, whether the effect of medicines would not in many cases be greater administered in this way than by the stomach, seeing they would escape the chemical influence of the digestive process! The subject appears to me to be deserving experimental investigation. I am, Sir, your obedient servant,

C. Searle, M.D., M.R.C.S.L.

Bath, Feb. 10, 1842.

THE CHINESE THEORY AND PRACTICE OF MEDICINE.

By Toogood Downing, Esq., Surgeon.

It will readily be conceded that the science of medicine is one of the most complicated and obscure of all those which the genius of man has ever attempted to investigate. Independently of its progress by the advancement of a variety of collateral branches of knowledge, much will ever depend on accident and the result of extensive experience. On this account it might reasonably be expected that an investigation into the state of the art among the Chinese would prove in-

structive, as they are allowed to constitute the oldest nation on the face of the earth, and have even from the remotest antiquity preserved the records of their history and principal discoveries. Much might be expected from the extent of the empire, the number of inhabitants, the progress which they are known to have made from the earliest times in arts, manufactures, agriculture, and different branches of civilisation, and the knowledge which they possess of the properties and uses of the mineral and vegetable productions of their country. The case is far otherwise. With the exception of a very few valuable facts which have long ago found their way into Europe, and been generally adapted to practical purposes, the details are rather calculated to raise a smile against the inhabitants of the Celestial Empire. It may still be interesting to proceed with the inquiry, as there is an originality about everything Chinese, ranking among their countrymen some of the most sagacious philosophers that have ever existed, that entitles their crude and unconnected notions to attention, if not to a certain degree of respect. Many of the medical ideas of these people have a remarkable affinity to those which have existed in the most civilised nations of the Western world; and thus it may be curious to observe the effects produced by the working of the intellect in this mass of human beings, separated, as they have ever been by their prejudices, from intellectual intercourse with Europeans.

The Chinese trace back the origin of the art of medicine to the very foundation of the monarchy. One of the earliest kings, Shinming, the divine husbandman, has the honour of the discovery. Having introduced the cultivation of corn among his people, he thought that Heaven bestowing upon mankind plants for nourishing the body, had also created herbs to remedy disease: he therefore examined their qualities, and communicated the result of his researches to the people. From the longevity of his contemporaries, it was inferred that the remedies invented by him must have been very excellent. The system established by his practice has, therefore, been generally adopted; and to this we are, in a great measure, to attribute the low state of the art at the present time. It forbids all improvement; as by following the rules thus laid down, a physician need be in no anxiety for the result of his practice. If the patient recovers, all well; if he dies, it is owing to accident, and by no means to his physician's want of skill. If, on the contrary, the doctor follows a method of his own, and the sick person dies under his care, he is amenable to the law, and is generally prosecuted for manslaughter. Again, the Chinese medical men are by no means a privileged class; no examination or diploma is required; any one who has read a few medical books may practise, and the government takes no notice of him, unless he kills people in a manner different from that which the law directs. Doctors, therefore, abound in all the principal cities and towns, and every petty village has its practitioners. The fees are extremely small, except in certain instances where persons have obtained reputation by repeated success. The quacks and mountebanks are in as great abundance as in the most civilised nation of Europe. No encouragement is given to the study of medicine by the government: no schools of public instruction are in existence. In the capital alone a medical board is established, for the express purpose of watching over the health of the members of the royal family. Dispensaries are, however, to be found in the principal cities, where the poor receive gratuitous medical aid from doctors in the pay of the state. In many inveterate diseases the physicians refuse to wait upon the patients, because the disorder is declared, by the rules of practice, incurable. Whenever a sick person cannot eat rice, the physician gives up his case as hopeless; and the luckless practitioner comforts himself with the native adage, "that there is medicine for sickness, but none for fate."

Venereal complaints are usually left in the hands of empirics, as it is considered disreputable by the regular practitioners to be engaged in their cure. Many hundred volumes have been published in China, treating of the different branches of the healing art; but these, for the most part, being filled with uninstructive, and frequently unintelligible, jargon, are likely rather to mislead the practical inquirer. Among these may be mentioned the "Châng-sang," or Long Life; a treatise on diet and regimen, which are discussed under the four heads of—the passions, diet, the actions of the day, and the rest at night; the "Pim-tsaou," an essay on botany and materia medica, including various particulars of the animal and vegetable kingdoms; and, lastly, the "Ching che chun ching," or approved marking-line of medical practice. This last is a very celebrated work, consisting of forty volumes; seven being devoted professedly to nosology, eight to materia medica, five to pathology, six to surgery, and the remainder to the diseases of women and children. To show how very illogical the Chinese are in their divisions of a science, an extract from either one of these volumes will suffice. Thus, under the title of nosology, we have—"The human body is composed of water, fire, wood, metal, and earth; the five elements which constitute the substance of everything. As long as the equilibrium between them is maintained, people enjoy health; as soon as one becomes predominant, sickness ensues. All diseases arise from disturbing the natural relation of these component parts, and the art of healing consists in restoring their natural relation. A physician ought, therefore, first to ascertain which

of the elements has gained the ascendancy over the others, and, after mature deliberation, he should endeavour to counteract its baneful effects. Inflammatory diseases arise from the prevalence of fire. Distorted eyes and mouth arise from the prevalence of wood over the metals, which contracts the muscles. Under such circumstances earth discharges its nature, its power relaxes in the interstices, the eyes become hollow, and the muscles are contorted, as may be abundantly proved from the classics." As it is impossible, therefore, to be guided by these books in our examination of the actual state of medical science among the Chinese, it will be well to proceed to the investigation of the several branches of which it is, or ought to be, composed.

The knowledge of anatomy among these primitive people is extremely slight and superficial. Their extreme reverence for the dead forbids the practice of dissection, so that the only apparent source of information is in the examination of the bodies of inferior animals. The same respect, however, for the departed induces a certain knowledge of osteology, as the bones are frequently arranged and preserved with the most scrupulous care by the relatives. The existence of the great viscera of the chest and abdomen is certainly ascertained, but the Chinese are profoundly ignorant of their relative positions. The heart is thus supposed by them to lie on the right side, and the liver on the left. There is scarcely an allusion made to the nervous, fibrous, or muscular structures.

In physiology the Chinese are seen to scarcely less disadvantage. The circulation of the blood has been known to them for the last two thousand years: the knowledge of this important fact is, however, extremely imperfect: they are aware of its course through the arteries and veins, but are utterly ignorant of the part played by the lungs in its purification. The uses of respiration are summed up in the following theory of the formation of dropsy:—"Throughout the human body a vivifying ethereal fluid is transfused, which is called ke, and resembles the ether of nature. According to the best ancient authors, water enters through the mouth into the body. Besides the natural way of evacuation, it is either absorbed during cold weather by the ke, or when the weather is hot it comes forth as perspiration; when grief oppresses the mind, it reappears in the shape of tears, or is thrown out as saliva. But when the ke is vitiated, its ejection is obstructed; it accumulates, and gives rise to dropsy: the restoration, therefore, of the patient is promoted by the evacuation of the water." Upon their imperfect acquaintance with the circulation of the blood, is founded one of their most singular notions: it is called the doctrine of the pulse. The Chinese physicians say they can distinguish by the touch no less than twenty-four different kinds of pulse; such as the hard, soft, wiry, intermittent; and assert that each part of the body has a pulse peculiar to itself alone, and in relation to some distant organ of the body. Thus there are three pulses in the arm, called the inch, the bar, and the cubit; and the pulse at the wrist of the left hand is in accordance with that of the heart, while the pulse of the liver is to be found higher up in the same extremity; and the pulses of the stomach and of the lungs are to be found in the same positions in the right arm. By merely feeling the pulse in different parts of the body they can ascertain the seat of a disease, with the symptoms and mode of cure. They, moreover, pretend that they can discover in this way, whether or not women will be blessed with children, whether the offspring will be of the male or female sex, and other equally obscure, but interesting, matters of inquiry. These latter pretensions will, doubtless, be supposed founded upon neither reason nor observation, but it may be a matter of question whether the Chinese have not even exceeded us in the precision of touch and nicety in distinguishing the nature and variations of which the pulse is susceptible. At all events, this doctrine occupies all the attention of the native physician. He examines the pulse for hours together, then prescribes, and, certain of success, leaves the house without any intention of returning, unless again called. His very profession depends upon the accuracy with which he explains the causes and subsequent progress of the disease, the beating of the pulse being the criterion. With the greatest confidence he predicts the course which the disorder is to take, and in how many days the patient will be relieved from his complaint. Those who deem the subject worthy of further investigation, will find a large space devoted by Du-halde to its consideration; and if the inquiry were carried to the extent of ascertaining the origin and foundation of nearly similar doctrines and practice among the Turks and other Mahomedan nations, possibly some useful hints might be elicited. Among others equally incomprehensible, the Chinese entertain the idea that the nose is the part of a person which is first formed in the embryo. Hence, in the literature of the country, the nose ancestor is the designation of the original founder of a family.

Under the head of pathology we find the following classification of diseases in the "Ching che chun ching" above mentioned:—

1. Violent and mortal fits, divided according to the causes which have induced them; as wind, cold, heat, moisture, vapour, nutriment, &c.; also suicide and accidents.

2. Indispositions occasioned by heat, moisture, dryness, eating and drinking, fatigue, &c.

3. Fevers and agues; hot, moist, dry, malignant, cold.

4. Defects in respiration, suffocation, short breath, dropsy, cough.

5. Vomiting of phlegm, pus, green and sour water.

6. Hæmorrhages; bleeding at the nose, tongue, teeth, and ears; vomiting and coughing of blood.

7. Pains in the heart, head, face, stomach, &c.

8. Paralytic complaints, gout, acute rheumatism.

9. Rheumatic complaints of seven different kinds.

10. Mental disorders, insanity, madness, immoderate laughing, fits of fear, rage, trembling, &c.

11. Sundry diseases, including immoderate perspiration, sleeplessness, somnolency, lassitude, yawning, &c.

12. Diseases of the viscera, diarrhœa, dysentery, &c.

13. Ophthalmic complaints.

14. Pains in the ear, nose, tooth, mouth, jaw-bones; and also cutaneous diseases, and those of the hair.

The materia medica of the Chinese is most abundant. There is scarcely any substance with which they are acquainted that has not at one time or another been used as medicine. Of all those derived from the vegetable kingdom, none is in such high estimation as the root of the panax quinquefolius: its name gin-sing signifies "the wonder of the world, or dose for immortality:" they assert that it is able to ward off or remove fatigue, to invigorate the enfeebled frame, to restore the exhausted animal powers, to make old people young, and, in a word, to render man immortal. This drug is found in the mountains of Shan-tung and Leoting, and large quantities are now imported from America. The rudiments of scientific knowledge may be inferred from the directions given to the herbalists to gather it on the first two days of the second, fourth, and eighth moon, when the stars are said to be propitious. Tea is occasionally used as a medicine; also tobacco, and that species of camphor procured by the Malays from the dry oval anops camphora. Opium has long been used as an anodyne, and in the treatment of dysentery. They treat consumption with foxes' bones and otters' livers: they say that harts and rhinoceros' horns, the bones of the tiger and elephant, are very excellent remedies in extreme weakness, they strengthen and fatten the body, and a dose of tiger's bones is even said to inspire courage. An elephant's eye burnt to powder and mixed with human milk, is a sovereign remedy against the inflammation of the eyes. The following quotation from one of their works on materia medica is somewhat in accordance with views which prevailed in England in former times:—"Of all roots that are produced, the upper half of what grows in the earth is known to possess the property of ascending the system, while the lower half has that of descending: as to the power of branches, they medicinally extend to the limbs of the body. The peel or bark has influence over the flesh and skin; the pith and substance of the tree within the trunk operate on the viscera: that which possesses light properties ascends, and enters the region of the heart and lungs; that which is heavy descends, and enters the region of the liver and kidneys; that which is hollow promotes perspiration; that which is solid, internally, attacks the internal parts of the system; that which is hot, but decayed, enters the breath; that which is mollifying enters the blood-vessels. Thus the upper and lower, the internal and external parts of medicinal plants have each their correspondent effects on the human system." Some few medicines are derived from the mineral kingdom. Mercury is employed extensively for the cure of the venereal disease. The preparations of this metal are nearly the same as those used in Europe. Native quicksilver, oxide and sulphate of mercury, calomel and corrosive sublimate. As they are utterly ignorant of, and have not even a name for chemistry in the Chinese language, the mode of proceeding for the preparation of these important remedies forms a curious subject of inquiry. They are all prepared from cinnabar, which is a native of China; but the details are too lengthy to admit of introduction to the society this evening: it will be sufficient merely to state generally, that the apparatus employed is extremely clumsy, and the result imperfect, and at all times uncertain.

Mercury is considered a specific in many disorders, and is supposed to have formed the principal ingredient in what was called "the liquor of immortality;" the injurious effects arising from the excessive use of which have now excluded it entirely from practice.

With such feeble help from those departments of knowledge on which the science of medicine should properly be founded, it will excite no surprise that the Chinese physicians should have recourse to agencies which they believe to possess supernatural powers. These, like many other half-civilised people, regard the heavenly bodies as exercising a peculiar influence over the destinies of man. They consult the stars on all occasions, and always direct the most important concerns of life by the dicta of the native astrologers. The Chinese, like the European philosophers, Plato and Proclus, have faith in the pentad, or five principles in nature; and thus make the five planets with which they are acquainted preside over the five viscera, the five elements, the five colours, and the five tastes. Thus, Mars, who is said to be in nature hot and dry, takes to himself the most bitter medicines, which are red in colour, and when introduced into the system go directly to the heart. "All medicines which

are *green* are considered to belong to the element *wood*, and operate on the *liver;* the *red* belong to *fire*, and operate on the *heart;* the *yellow* to *earth*, and operate on the *stomach;* the *white* belong to *metal*, and operate on the *lungs;* and *black* medicines belong to *water*, and operate on the *kidneys*." Instead of running the round of the fortunate or mysterious numbers, each of which has had its powerful advocates in the west, the Chinese philosophers have confined themselves to the pentad and the duad. The yâng and the yin, or male and female energies in nature, the active and passive agents, in China derived from the revered source of the Y-King, play an important part in this as in every other department of Chinese learning. It is believed by these people that every phenomenon in the universe may be explained by reference to these obscure and awful principles. Thus, "all medicines, on account of their properties, that are cold, hot, warm, and cooling, are said to belong to the yang, or *male energy* in nature; while their tastes, as sour, sweet, acid, and salt, are considered as belonging to the yin, or *female energy* in nature. Those whose properties are strong, partake of the yang principle; while those whose properties are slight, partake of yin;" also in physiology, "the blood contained in the human body is of two kinds, the yang and yin; the yang is contained in the arteries, and circulates throughout the body; the yin is in the veins, it nourishes the soul, and moistens the bones and sinews." These mystical principles, the yang and the yin, have, doubtless, reference to the male and female organs of generation, the active and passive agents in the fruition of the earth, and have under different synonyms bewildered the reason of the most enlightened nations of antiquity, as may be abundantly proved by reference to O'Brien's wonderful treatise on the Round Towers of Ireland. In addition to these and other fantastic theories, the Chinese works on medicine abound with recommendations on the choice of fortunate days and hours in the cure of disease. Neither are their written directions for the treatment of maladies more in accordance with our notions of propriety. The most strange medicines and singular expedients are placed in juxta-position with wholesome advice, founded upon the rules of good sense and experience. Witness the following extract from the approved marking-line of medical practice:—"If prompt measures be adopted with persons who have hanged themselves, there is some hope of bringing them to life again. After they have been carefully cut down, they are stretched out on the ground; one man places his feet upon the arms, and twists the hair round his hands, while another puts his hand upon the breast and rubs it, and a third bends the arms. As soon as the patient revives, give him decoction of cinnamon and rice water. If there still exists a difficulty of swallowing, let a man blow with a tube into his ears; this is a most excellent way of restoring people to life. If the patient has recently hanged himself, it will be sufficient to blow air into his mouth; if he has hung too long, it is in vain to try to revive him. Persons who have been apparently killed by pressure, may be revived by pulling the hair and blowing powder into the nose. Drowned persons ought to be laid across the back of a cow, or laid over a bench, in order to expel the water. If the accident happens in winter, he must be carefully covered with blankets and rubbed with stimulants: those who are under the influence of demons and exhausted with excessive pain, ought to have their nose twisted, their face spit upon, their feet bitten, and their elbows burnt, to awaken them from their stupor." Again, "if the limbs are cramped, the throat rattling, and the patient in a fainting state, give the decoction of ginger, hemp oil, and aromatic pills; or a tail of ginsang decoction and san sang with the juice of ginger. If, after having used some stimulants, the patient revives, there is some hope, otherwise he is incurable. If persons suddenly faint, because the phlegm has run over the heart, the most effectual remedy is a fumigation with vinegar, whereupon it returns to its vessels; but if the patient drink a drop of water, it settles there, and he must die: when the eyes are yellow, the muscles contracted, and the mouth parched, a dose of bezoar stone or rhinosceros's horn will be very efficacious."

Those who have witnessed the actual practice of the Chinese physicians mention the gross blunders they have committed. Thus, a well-marked hernia has been mistaken for an accumulation of noxious vapours, and a puncture of the part recommended. A case of dysentery has been treated with pepper, cardamoms, and ginger in distilled spirit.

Notwithstanding these and similar errors in theory and practice, it must be confessed that the natural sagacity of individuals has occasionally been displayed to advantage. Many of these in the neighbourhood of Canton have been extremely successful in their treatment of the sick, and have acquired the entire confidence of their countrymen. Moreover, I have been informed that English and other foreign residents in that provincial city have more than once found relief under their hands, when their cases have been given over as hopeless by the European practitioners: that the contrary is more often the case is a notorious fact. In no one instance have the Chinese shown greater sense in the abandonment of deep-rooted prejudice, than in their acknowledgment of the superiority of Europeans in the healing art. They not only place themselves with confidence under their care, but are extremely grateful for the benefit they receive. From

pure motives of humanity, as well as a wish to conciliate these strange people, hospitals have been opened at Macao and Canton for their especial benefit, and an immense deal of good has been effected by their means.

Among the very few points in which European medical science has been benefitted by intercourse with the Chinese, may be mentioned the use of the moxa, which found its way by the route of Batavia and Holland to England. The acupuncture has long been used by these people. The Chinese employ silver needles, which are stuck into the flesh and twisted round, whilst the physician compresses the slight wound thus made. Inoculation for the small-pox, by means of small dossils of lint impregnated with virus placed in the nostril, has been in constant employment since the close of the tenth century. There can be little doubt but that the Turks derived their knowledge of this mitigating remedy from the Celestial Empire, and thus its introduction into Europe.

A few years since Mr. Pearson, surgeon to the British factory, recommended the practice of vaccination among the Chinese, and this mode of prevention is now extensively adopted, and was making, until very lately, a rapid progress in the public estimation. It remains but to say a few words about the drug-shops. These are very common in the city of Canton. They are supplied with bottles, gallipots, drawers, and mortars, as with us, and are remarkable for the cleanliness and order of their arrangement. The inferior order of practitioners paste their placards about the town, and distribute handbills to the multitude. The pharmacy of the Chinese is richer than that of any other nation; a physician has a large choice, and to be always sure he prescribes a variety of drugs, one of which at least may prove effectual; these are given either in the form of decoction or bolus, and it frequently happens that the poor patient, unable to swallow this large dose of medicine, is suffocated; but such accidents create little sensation, because it is dying according to the system established by the ancients.

ON THE ANATOMY AND PHYSIOLOGY OF THE DECIDUA.

Dr. Robert Lee, in a paper lately laid before the Royal Society, describes some appearances which he has observed in the structure of the human decidua, and which apparently prove that the circulation of the maternal blood in the ovum is carried on during the early months of gestation, chiefly by the different layers of this membrane, and the cells of the chorion. He has been led by his observations to the belief, that the veins of the uterine decidua convey blood from the decidual cavity into the veins of the uterus; and that in all probability a current of maternal blood is constantly flowing from the cells of the chorion, through the decidua reflexa, into the decidual cavity.

THE LANCET.

London, Saturday, March 5, 1842.

The Supreme Government of India adopted in 1835 a suggestion of Mr. Martin, and required from the medical services of the three Presidencies *reports on the medical topography of the country generally.* Mr. Martin did more than make this suggestion; he adopted it himself, and gave an admirable example to his brethren in the "Notes on the Medical Topography of Calcutta," which were printed by the Government. Mr. Martin was surgeon to the native hospital, as well as presidency surgeon, and had, we believe, the first practice in Calcutta for some years. His opportunities for observation at the hospital (intended for surgical cases) made him well acquainted with the condition of the poorer natives; and a natural sympathy for their sufferings, joined with an ardent love of science, which did not evaporate in the heat of Bengal, led him in the midst of his other pressing avocations to undertake an investigation into the causes of the "constant, "universal, and frightful prevalence of fever "among the native inhabitants." In the notes which he first transmitted to the governors of the hospital, he pointed out the object and importance of the knowledge of the external circumstances which influence the health of the inhabitants of a particular country; the power possessed, by removing defects of locality, to remedy those of climate; the effects actually produced in Calcutta, within a comparatively recent period, upon the health of the inhabitants by such improvements of this nature as have been made; the lamentable and "worse than Batavian condition" of this city in the early periods of its occupancy by Europeans; the danger of its experiencing the gradual consequences of neglect in this respect, and becoming as unhealthy as in former times; its *present insalubrity, manifested by the extraordinary*

extent of remittent and intermittent fevers, with all their fatal consequences, in all parts, and during every month of the year, but especially on the decline of the rains, the works which he considered likely to improve and maintain its salubrity, the necessity of an attention to the state of the suburbs, in the first instance, without which it was useless to attempt any great improvement within the city, and the importance of draining the salt-water lake, and the necessity of some precautions in so doing.

It was part of his recommendation that a fever hospital should be established, and a committee, consisting of Sir E. RYAN, Sir J. P. GRANT, C. W. SMITH, Esq., BABOO RAMCOMUL, sen., S. NICOLSON, Esq., J. R. MARTIN, Esq., Dr. A. R. JACKSON, and other gentlemen, was appointed, by direction of Lord AUCKLAND, to whom Mr. MARTIN addressed a letter on the subject in 1836. The object of the committee was twofold—to promote the foundation of an hospital for the treatment of medical cases, and to investigate the sanatory condition of Calcutta, on the basis laid down by Mr. MARTIN. The committee took much valuable evidence, which was ordered to be printed by the Governor-General in 1837, and appeared with an elaborate and very able report by Sir J. P. GRANT in 1840. The report of the committee and the appendices fill several volumes, of which we shall give the principal results, as it is scarce in this country, although it was published by authority in India. The substance of Mr. MARTIN's papers has been incorporated, with some modifications, in the last edition of the elaborate work—cyclopædia, it should perhaps be called—*On the Influence of Tropical Climates,* by Dr. JAMES JOHNSON and Mr. MARTIN. The evidence of Dr. O'SHAUGHNESSY, Dr. STEWART, Dr. RALEIGH, Mr. PRINSEP, Dr. GRAHAM, and Mr. F. H. BRETT, contains much valuable matter.

Bengal is inhabited principally by Hindoos, the aborigines of the country. They constitute about four-fifths of the population, which was estimated in the Parliamentary report of 1831 at 23,358,750. The Bengalees are of slender, delicate frames. From observations made at the native hospital, under the direction of Mr. MARTIN, it would appear that the mean weight of the adult native is only 96½ lb., the mean stature 5 feet 5¼ inches. The Mahomedans, who conquered India in the 13th century, exist in considerable numbers, with a mixture of Affghans to the west. The "up-country sepoys" of the Indian army—the hill coolies—are described as a superior and respectable class of men. We have not space to discuss the religion or manners, but a few facts must be noticed which have a direct relation to health. Dr. TENNANT remarks, that an hospital for the sick poor of low caste was never known in India before the establishment of the British, though there were hospitals for dogs, cats, lions, and several other animals. We apprehend, however, that if the Hindoos had had hospitals, the medical relief would, according to the best accounts, have been of very equivocal value.

Mr. MARTIN denounces the pernicious institution of *caste,* as inimical to public happiness, and injurious in a thousand ways to public health. He who preserves his caste needs not disturb his mind on any other subject connected with moral or religious obligations. In the Hindoo acts of devotion there is not a vestige of reference to the divine attributes, or to moral duty; instead of a purification, the Hindoo seeks oblivion in his orgies. The Brahmins enjoin them to drink plentifully of a kind of sherbet, containing *datura* or *bhang* (cannibus sativa), which produces total insensibility for a time, ending in wild delirium, and sometimes in permanent loss of reason. Early marriages without affection are common, and are productive of much evil. Three parts of the married population, according to WARD, keep concubines. Polygamy prevails. The females are complete slaves; they are "stout and vigorous" before their thirteenth year, and alter much faster than European women.

Obscenities form a part of the sacred rites of Hindoo religion, and absorb, for weeks together, almost the whole of the public conversation. The religious immolation of widows was put a stop to by the enlightened administration of Lord WILLIAM BENTINCK. The number of victims burnt alive on the funeral pile was estimated at five thousand annually. Mr. MARTIN states that twelve thousand abortions are procured annually in Calcutta alone, through the abominations of the Kooleen Brahmins. The Bengalees have a custom of removing the sick and dying to the banks of the Ganges. "To die "under a roof, or out of sight of the Ganges, "is considered a heavy misfortune, and the pa- "tient is therefore removed from his house "under all inclemencies of season, and fre- "quently from considerable distances, to the "banks of the river, there to be let down in "the water up to the middle; and if this be "not sufficient, the friends, instigated by "their own impatience, or by the grave sanc- "tion of the native doctor, pour water down "his throat; shout the names of different "deities in his ears, and by this anxiety after "his future happiness hurry him into eter- "nity."—MARTIN.

The Hindoos are slothful; those in easy circumstances pass the whole day in eating, smoking, and chewing the pawn, reclining, and sleeping. They have a proverb, that the life of a woman being more sedentary is happier than that of man, and that nothing but the dangers of bringing forth children "makes them content to be men still!" They take no pleasure in agriculture; "few possess the convenience of a kitchen garden." The poor are kept in a wretched state of dependence by borrowing at high rates of interest (30 per cent.); the best labourers employed by Europeans are paid largely in advance by their employers, and borrow to supply the most common wants, evading payment as long as they can. Gambling is eagerly pursued.

The clothing is very slight; the head and feet are uncovered; and the *kummerbund*, it is said, is worn too low over the haunches to afford any protection to the abdomen. In the cold season the poor are eager to obtain shreds of woollen cloth, and appear to suffer much from the low temperature. They shiver all night, and continue benumbed in mind and body until the sun rises in the morning to some height, and invigorates them by its cheering beams. A suit of clothes for a farmer costs a rupee. Two are worn in the year. Diseases of the skin are of extraordinary prevalence among the lower orders. They use little or no bedding. Multitudes may be seen every night lying by the sides of the streets in Calcutta, almost on the soft earth, with a single cloth for their covering. Fuel is employed by the wealthier classes only for the purpose of dressing food; it is used neither to dispel the cold nor the excessive damp during the rains.

Some of the apostles of starvation in this country, when hard pressed for arguments, are in the habit of referring triumphantly to the flourishing condition of the Hindoos, who never taste animal food. What say Mr. MARTIN and the Indian authorities on this head? A man, his wife, and two children, eat two maunds of rice, which cost a rupee (2s.), in the month; if very poor, they only get with it herbs gathered in the fields, and green pepper pods; salt and a little oil are procured by those in somewhat better circumstances; the middling classes eat split peas, greens, fish, &c. The ashes of various plants are often substituted for salt by the poorest of the people. What is the effect of this miserable dietary, to which some speculators wish to reduce the hard-working people of England? "Whoever has travelled much "with the natives," says Dr. HAMILTON, "and been witness to the *weakness of their* "*constitution* in resisting the changes of air "or water, will agree with me in saying, "that those who enjoy a diet which includes "animal food and strong liquors in moderate "quantities, are best able to resist the influ- "ence of unhealthy climates, and the sudden "change of air." "It has always appeared "(to Mr. MARTIN) a *great mistake* to view "the diet of the Bengalee as *prescribed by*

"*climate:* on the contrary, he believes it to "be far below the standard required for "support under all the changes of the sea-"sons; in the hot weather and rains, it is "not sufficient to supply the great waste; "and in the cold weather, *its poverty is alike* "*injurious to health.*" The Bengalees are inveterately idle, and will not or cannot work hard; they earn a penny, threehalf-pence, or twopence a-day. The Mahomedans have a better system of diet; they are, therefore, on the whole, more robust, and more capable of sustaining efforts than the Hindoos. From a calculation of Dr. DUNCAN STEWART, it would appear that for six years the average annual mortality of the Hindoo population in Calcutta was *one* in 17½; while in the better fed and clothed Mahomedan population, only one in 38½ died! What have the vegetable and starvation doctors to oppose to that "remarkable fact?"

About a hundred miles from the sea, in 22 deg. 33 min. of north latitude, a population such as has been just described, amounting to more than 400,000 in number, are congregated on the slightly undulating banks of the Hoogly; the wealthy in brick, flat-roofed houses, two or three stories high, built in the form of a hollow square, and separated by dirty, narrow, and unpaved streets; the masses of poor in huts of mud walls, matted reeds, or bamboo, roofed with straw or tiles. This is Calcutta, the "native city." The European quarter is a mile and a quarter in extent. The ground is well drained. The houses have an imposing exterior, in the midst of gardens, and are ornamented with spacious verandas, supported by lofty pillars. The style of architecture is Grecian. This is Calcutta, the "*city of palaces,*" inhabited by three thousand Englishmen; shone on by a tropical sun; surrounded by a labyrinth of rivers, jungle, and wood, on the Delta of the Ganges,—and the capital of the Indian empire.

On the Diseases, Condition, and Habits of the Collier Population of East Lothian. By S. SCOTT ALISON, M.D., Hon. Sec. to the Medical Society of London.

IT will be recollected by many of our readers that upon the motion of Lord Ashley, in the House of Commons, a commission was formed, some years since, for the purpose of instituting an inquiry into the condition of the children of miners throughout the kingdom. To this commission, several of the rising members of our profession lent their gratuitous services. The report of the commission "on the employment of children" has just been published, and among the communications from the medical gentlemen who have devoted their exertions to this service, we have been particularly interested by the perusal of the observations of Dr. S. Scott Alison, which may be regarded as an abstract of the results of a labour of seven years, devoted unremittingly to this subject: Dr. Alison's remarks are referrible particularly to Scotland, but they trace a lively picture of the abject wretchedness of the mining population, which is equally applicable to all who are engaged in this pursuit. The paper displays considerable talent and ability, with great industry, and an extensive knowledge of medical science.

"The physical condition of the collier population of East Lothian," says the author, "in North Britain, including men, women, and children, is bad, and much inferior to that of most other classes of the population which have come under my observation.

"At birth, the infants of colliers, as might be expected, are not much inferior in physical condition to those of other classes, but before they have lived many weeks, or months, a remarkable inferiority is observable, especially to the children of farm-labourers, and of other individuals in comfortable and respectable circumstances.

"Many of the infants in a collier community are thin, skinny, and wasted, and indicate by their contracted features and sickly dirty-white, or faint-yellowish aspect, their early participation in a deteriorated physical condition.

"This inferiority of constitution is the result of many causes, varying in their nature, but assimilating in the production of a common effect. Among the causes of this deterioration of health may be enumerated,—unwholesome milk, the product of a mother the victim of disease or of intemperate habits; the irregular and insufficient supply of milk, in consequence of the absence of the mother, who is engaged in the colliery; the indiscriminate and premature use of coarse

and irritating food, which frequently induces relaxation of the bowels, and the manifold ailments which collier people group under the title of 'bowel hive;' the too long continued exclusive use of the mother's milk, which not unfrequently forms the chief sustenance of the infant for the first eighteen months or two years of its existence—a course too frequently pursued in order to save the pockets and the exertions of the parents; a filthy condition of the person; the presence of the alvine and urinary discharges upon the skin and upon the clothes, which not only irritate the integuments and interfere with its functions, but which very frequently produce such an impure atmosphere around the little victim as must be very unfavourable to its health and vigour."

"From the age of infancy up to the seventh or eighth year, much sickliness and general imperfection of physical development is observable, and this is owing to the comparative inattention of the mother to maintenance of cleanliness of her children's persons, to irregularity as to time in their meals; to the use of improper articles of food; to insufficiency of culinary process; to excessive quantity of food at one time, and to too little at another; to the practice of giving whiskey, either raw or diluted with warm water; to insufficiency of clothes, which are in many cases both filthy and ragged, and almost always quite inadequate to protect against the inclemency of the weather; to the inhalation when within doors of an atmosphere rendered noxious by damp, by human respiration, and by the various impurities which are almost constantly found in the abodes of this class of persons, proceeding from the inmates, which not unfrequently include horses, pigs, fowls, dogs, and cats.

"The physical condition of children belonging to colliers is much deteriorated by the practice, which is very much in use, of tender children being put under the *care* of young girls of perhaps eight or ten years, while the parents are engaged in the colliery, which is often for ten or twelve hours at a time.

"At the age of seven or eight years the children of most colliers, who are in tolerable health, begin to work in the collieries, either with their parents, which is the most common course, or with strangers, who hire them, which is the common practice with those who are orphans.

"The children thus early employed, who came under my observation, were supposed to perform work of a fatiguing or laborious character, were employed for many hours together, perhaps from eight to ten or twelve, without coming to the surface, were in the habit of working not only during the day, but during the night also. I have seldom walked or ridden through the coal villages at any hour during the night, summer and winter, without seeing little boys and girls going to and from the collieries, with their oil lamps in their hands or stuck in their caps, lighting them on their weary way."

"These children are, upon the whole, prejudicially affected to a material extent in their growth and development; many of them are short for their years: a considerable number fall into disease, both of an acute and of a chronic character, and several become crooked, and the subjects of spinal curvature.

"The muscular system almost monopolises the comparatively feeble energies of the young frame, and exhausts those stamina which should go, and are intended by nature to be expended in the development of the intellect and of the moral feelings, and of the manifold and various faculties of the human body. The nervous system, including the various parts of the brain, are comparatively little exercised, while that of the muscles is inordinately overworked; and thus the collier becomes more a mining or working animal than a thinking being—more a machine than a rational creature.

"Ere these children have been many years in the collieries death has thinned their ranks: many lose their lives, both immediately and remotely, in consequence of violence; some are killed instantly by machinery or waggons, by the rending of ropes, by the falling of stairs, rocks, and coal. Some, after surviving weeks, or months, or perhaps years, die at last of their injuries; while others escaping with life remain, during its whole course, maimed or crippled, or perhaps totally disabled for exertion. Wounds are very commonly suffered by these children, as may readily be supposed from the numerous scars and seams which their frames present. Where these wounds occur in the limbs, are deep, and penetrate the sinews, much impediment to labour is induced. I have attended young boys and girls on innumerable occasions for contusions, and lacerations of their limbs. Fingers and toes have been severed by violence, or so severely lacerated and injured as to require immediate amputation. The eyesight is frequently injured at this age, by the accidental intrusion of coal-dust or other materials; inflammation is induced, and the loss of one eye has been a not unfrequent result. Cough and difficulty of breathing is not uncommon among the boys and girls; and hypertrophy, or enlargement of the heart, has been frequently observed by me among the former, ere they arrive at manhood.

"About the age of twenty few colliers are in perfect health, almost all being more or less affected with difficulty of breathing, cough, and expectoration, either occurring occasionally or in a permanent form. The body of the adult collier at this age is generally spare, the muscles and sinews being well developed, and well marked in their outlines; there is little superimposed fat, and the strength of the muscular system is alto-

gether very considerable. When not suffering from disease, the collier generally eats well, and in short, with the exception of the respiratory organs, all his parts perform their functions aright.

"The women at this age are in general healthy, muscular, and not deficient in fat. The strength of these women is great, and I am not aware that their employment in the collieries is generally productive of deformity of such a nature as to render parturition difficult. Several of them are distorted in the spine and pelvis, and suffer considerable difficulty in consequence at the period of parturition; but I am inclined to think, where this has not arisen from direct violence, that it has been induced by general debility and bad habit of body, induced in infancy or childhood. Many women at this age are found to suffer from the effects of violence. The violence has generally proceeded from contusions from collision with waggons, from the fall of stones and coals; and the effects of this violence are lameness, imperfection in the motions of the limbs, hands, and feet, abortion and premature parturition.

"Between the twentieth and the thirtieth year many colliers decline in bodily vigour, and become more and more spare; the difficulty of breathing progresses, and they find themselves very desirous of some remission of their labour. This period is fruitful in acute diseases, such as fever, inflammation of lungs and pleura, rheumatic fever, and many other ailments, the product of overexertion, exposure to cold and wet, violence, insufficient clothing, intemperance, and foul air.

"After the thirtieth year it is rare to find a perfectly healthy collier; and so much so is this the case, that perhaps not one in fifty could pass the necessary examination to enter as a soldier into her Majesty's service: the difficulty of breathing becomes aggravated, the shoulders are drawn up, the respiratory muscles of the neck and breast become very prominent, and the cough seldom ceases for more than an hour or two day or night. The muscular strength generally declines fast, and so very weak are some before they reach the fortieth year, that they are unable to work more than two or three days in the week, and even when their symptoms do not indicate any other disorder than that of the breathing apparatus.

"The period included between the fortieth and the fiftieth year is marked by a rapid decline in the health of the collier; the symptoms of decay now succeed fast, and death is busy in the selection of his victims.

"After the fiftieth year comparatively few survive, and those who, by dint of greater strength of constitution, of temperate habits, and attention to the preservation of health, are still left, for the most part are broken down and decrepit.

"Few are seen above sixty years of age, and a collier at seventy has seldom come under my notice.

"The physical condition of women suffers less than that of the men, and the health of the former declines less rapidly than that of the latter. Many women engaged, or who have been engaged in coal work, are seen, at middle age, in the enjoyment of good health; and I have frequently met with collier women at sixty or seventy years of age nursing their grand-children, and promising well to survive a few more years. This greater amount of health, vigour, and longevity among the females is owing to their less constant presence in the colliery, to their not being employed in the hewing out of the coal, or in the cutting of the stone dykes, and also to their early retirement from the underground labour, which very generally takes place as soon as the children are far enough advanced to assist the father, or (if he is dead, as is commonly the case) the older brother."

We shall continue our abstracts from this paper in a future number of our Journal.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, February 22, 1842.

Dr. WILLIAMS, President.

Case of Partial Dislocation of the Humerus forwards. By JAMES DOUGLAS, Lecturer on Anatomy, at the Medical School, Portland-street, Glasgow. Communicated by F. LE GROS CLARK, Esq.

THE object of the author in relating the present case, with the history of which he is unacquainted, although a drawing of the scapula and newly-formed socket accompanied the paper, is to combat an opinion expressed by Mr. South, in a paper published in the 22nd volume of the Transactions of the society; namely, that partial dislocation of the os humeri forwards could not exist without fracture of the coracoid process. The new socket is an inch broad, by an inch and five-eighths long, hollowed in both directions; and its inner posterior edge is distant a quarter of an inch from the coracoid notch.

Cases of Laryngitis treated by Operation; with Remarks. By JOHN WILSON, M.D., Physician to the Middlesex Hospital.

After remarking on the inexpediency of allowing patients to reach an advanced period of the local affection before the operation is performed, Dr. Wilson expresses his opinion that the operation may not be too late for a chance of success, even though respiration should have ceased. He illustrates, however, the expediency of the early operation by analogies drawn from his expe-

rience in pleurisy, in which the early removal of effused fluid has appeared, to prevent the permanent compression of the lung. He then proceeds to state two cases, one of chronic, the other of acute laryngitis, both recovering after the operation of laryngotomy. In the first case, that of a woman, delirium, cold perspirations, and fixed contraction of the pupils, had taken place. The stethoscope being used, no air was heard to pass; the patient was insensible to light. Before the stilette was introduced she had evidently ceased to breathe. A tube, first straight, afterwards a curved one, was left in the opening made by the operation; the latter shape being less irritating to the back of the larynx. Finally, the curved tube was dispensed with. In the course of this person's recovery she was brought under the influence of mercury. Three years after the operation she was seen enjoying good health. Six days before the young man who is the subject of Dr. Wilson's second case was brought into the hospital, he had been labouring under a severe cold, with cough, hoarseness, and a sense of choking. These symptoms had increased to a very high degree when he came in. After being put into a warm-bath he was attacked with a very severe paroxysm. Three hours afterwards, the symptoms not improving, laryngotomy was performed with great immediate relief. In the progress of the recovery a piece of false membrane came away. The tube was retained from November the 15th to December the 18th, when, being taken out to be cleaned, it could not be returned. Two years after the operation he was known to be in good health. In both these cases the crico-thyroid membrane was pierced by a trocar, which plan Dr. Wilson recommends for the operations. He makes an admission, that the inferences drawn from these cases are more applicable to adults than to children. The struggles of the latter, and the pliancy and want of prominence in their larynx, increasing the difficulties of the operator.

The paper closes with an account of two other cases, in which life was prolonged by the operation, but the patients ultimately died, the lungs having been affected previously with irremediable disease.

Dr. Johnson said, that the operation of tracheotomy, in cases similar to the one related in the paper, although sometimes difficult, were generally attended with but little danger. He had never heard or read of a case in which the operation itself destroyed life; and, as the proceeding most frequently afforded temporary, and in some instances permanent, relief, he thought it ought to be resorted to much earlier than was usual, and not put off as a *dernier resort*. Twenty-seven years ago he had assisted at an operation of this kind, in which the patient was in *articulo mortis*, from mischief to the larynx resulting from inflammation. There was nearly perfect occlusion of the rima glottidis —the patient could neither speak nor swallow. The opening was made below the cricoid cartilage, and so immediate was the relief afforded by the operation, that the opening had been scarcely made before the patient went to sleep, although he had not slept for three nights previously. The straight canula had been first applied, but it caused so much irritation that it was found necessary to change it for a curved one, which was kept partly in and partly out of the wound, so that its extremity did not touch the interior of the trachea. The canula was from a quarter to half an inch in diameter. For the first month or two it was found difficult to get the canula in again after it had been taken out of the wound: this was remedied by having a curved bougie substituted during the time the canula was out of the tube. All irritation soon, however, ceased, and the patient did not experience any inconvenience. Of course he had never spoken since, but was still alive, or at least was so two years ago. In this case he (Dr. Johnson) believed that if the operation had been performed two or three days earlier, before the disease had so much obstructed the passage, that the patient would have been enabled to have altogether dispensed with the canula. There was a statement in the relation of Dr. Wilson's cases which certainly afforded him (Dr. Johnson) some surprise; it was to the effect, that immediately after the operation had been performed the patient exclaimed, "All's well." He thought this circumstance remarkable, and altogether opposed to what he had thought possible for a patient to do under such circumstances.

Dr. Watson observed, that it was unquestionably surprising that a person should be able to speak during the time a canula was in the trachea. He had, however, himself seen more than one case in which persons with an aperture in that tube were able to speak in an audible voice. He did not pretend to explain how this could occur. The point of the greatest practical importance in the paper was its enforcement of the necessity of resorting to the operation early: it was, no doubt, often delayed too long. One case, however, of his (Dr. Watson's) own, in which Mr. Arnott operated, would appear to show that the operation would succeed under apparently most disadvantageous circumstances. In this case the patient, a woman, was actually *dead* when the operation was resorted to, and the lungs were inflated artificially. The proceeding was successful, and the patient lived for some months afterwards, but was then found dead in her room, probably from a similar attack. He thought that the reason why in some cases the operation was successful, whilst in others it was followed by a fatal result, de-

pended on the circumstance, that in the former the air was suddenly cut off before mischief had been done to the lungs; whilst in long-delayed operations, where the disease was of gradual growth, and the stoppage of air also gradual, effusion into the lungs took place, and the patient could not recover.

The PRESIDENT had seen a case in which there was ulceration through the thyroid cartilage, which caused a whistling sound in respiration; but in this case the voice, though broken, was intelligible.

Mr. ARNOTT alluded to the case spoken of by Dr. Watson. He was hastily summoned to the patient, who had ceased to breathe. He immediately opened the trachea, and by means of a catheter inflated the lungs: she recovered, and lived, as had been stated, some months afterwards. This was the first case in which he had satisfactorily seen an ulcer in the trachea produce a spasmodic closure of the glottis. On examining the body after death, the larynx was found to be free from disease, but about half way down the trachea was situated an ulcer; this had produced irritation, and spasm of the glottis ensued. He recollected another case in which a syphilitic ulcer, situated below the larynx, had produced fatal spasm of the glottis. The author in his paper had referred to the mode of performing the operation with a canula and trocar. The operation of tracheotomy was known to be sometimes difficult, particularly in children, from the almost impossibility of controlling their motions. In the adult, too, it was sometimes no easy matter. The performance of the operation by means of the trocar and canula in the adult, possessed some recommendation, particularly the avoidance of hæmorrhage. There was scarcely a difficulty in these cases: the trachea was to be firmly grasped between the fingers, and when the trocar was pushed through the walls of the passages the hand was to be elevated, in order that the inner surface of the trachea should not be injured. In children, however, it was not so free from objections; the trachea was small, and the instrument might slip aside and wound the carotid. He had performed the operation, however, in one case on a child three and a half years of age.

Mr. PERRY recollected a case at St. Bartholomew's Hospital, in which a man had tracheotomy performed for laryngitis. When the canula was filled with mucus, so as to require the introduction of a probe to remove it, the man recovered his voice, but when the tube became again pervious he could not speak. Perhaps in Dr. Wilson's case blood had, for a moment, clogged up the instrument, and the patient had been enabled to speak. In this case a curved tube, extending some way down the trachea, was employed; but this soon became encumbered with mucus, and a short silver tube was substituted, the extremity of which was not allowed to touch the inner surface of the trachea.

In answer to a question Mr. ARNOTT replied, that in the case to which he had referred, of spasm depending upon ulceration, that it was possible inflammation might have been present and caused the spasm, but he was not inclined to this opinion. He related a singular case of loss of voice in a young woman, who had not spoken for sixteen years—her age was thirty-two. Her trachea had been twice opened to save her from suffocation. She came under his care in the Middlesex Hospital. She could not articulate any sound, but on becoming more familiar with her he was just able to understand what she said when his ear was placed near her mouth. She was submitted to the cold shower-bath, but it was of no service. Then electro-magnetism was tried, but it failed also. It was left off for a week and then tried again, the wires being carried across the trachea. Her voice at first became an audible whisper, and subsequently she could speak distinctly. She remained with a full voice for two months, but at that time became affected with pain in the loins: for this she was submitted to electro-magnetism, and singularly enough her voice again became inaudible. What was the condition of the organs in this case—was there paralysis? She was now again under treatment, with the electro-magnetism to the trachea, but hitherto without avail.

Dr. WATSON believed that in the case which he had first related there was no inflammation present. The attacks were frequent and sudden, and in one of them the patient died. He believed the case was one of pure spasm.

Dr. WILLIAMS remarked, that the author of the paper had not attempted to explain the actual cause of death in those cases in which a fatal result took place, two or three days after the performance of the operation. With regard to the treatment of idiopathic laryngitis, he believed the administration of mercury produced a beneficial result, the breathing becoming easier during the time the mouth was sore. When the mouth was well, however, the symptoms again returned, and continued as bad as ever, unless mercury was again resorted to, or some other plan of proceeding was adopted. In two cases he had administered the oxide of platinum, in two to three-grain doses, three times a-day. Full vomiting was produced, and the patients were much relieved. In the case of ulceration of the trachea, which he had referred to in a former part of the evening, mercury was administered on two occasions, but without success. One grain of the oxide of platinum was then given with benefit every six hours. This medicine was of no service in laryngeal phthisis.

ANNIVERSARY MEETING,

March 1, 1842.

The annual meeting for the election of officers, &c. took place to-day. Dr. Williams was re-elected president; Dr. Cursham was appointed secretary in the place of Dr. Mayo.

The finances are in a flourishing condition, and the society now numbers four hundred and eleven members.

Dr. Williams made an excellent address, in which he gave some particulars of the lives of three members who had died during the year; these were, De Candolle, Dr. Yelloly, and Mr. Powell. We may, perhaps, find room for some extracts from the address next week.

WESTMINSTER MEDICAL SOCIETY.

Saturday, Feb. 26, 1842.

Dr. Golding Bird, President.

COLIC FROM LEAD.—BLUE MARK OF THE GUMS FROM LEAD.—CHINESE MEDICINE.

The President inquired whether any of the members had observed colic to arise from acetate of lead administered medicinally? He had never met with such a case himself till lately, and, indeed, had believed it impossible, if precaution were taken to keep the bowels open. Recently, however, he had seen three well-marked cases in succession, in which colic was caused by acetate of lead administered for hæmorrhage; in one case two grains of the acetate had been given every three hours for forty eight hours, and about the same quantity in the others. In all the cases the blue line around the gums, characteristic of the effects of lead, was present.

Mr. Elliott had administered acetate of lead largely in chronic hæmoptysis, but had never known colic or any ill effects to arise from it. He gave it in doses of three to five grains every four hours with a little acetic acid, taking care that the patient's bowels were kept open, and that vegetables were not taken, or anything likely to cause the generation of carbonic acid gas.

Mr. Snow had seen colic in a young woman to whom acetate of lead had been given for a profuse vomiting of blood; there was the blue line on the gums in a marked degree. He did not know the quantity of medicine which had been administered, for the patient came under his notice only after its exhibition.

Mr. Chowne related the case of a person who took sugar of lead in mistake for Epsom salts on board ship. Vomiting was caused by the poison, and kept up subsequently by emetics. The patient recovered without any ill effects.

The President had seen death occasioned in two children who drank a solution of acetate of lead from a bottle labelled "mushroom ketchup;" before he witnessed this he had doubted whether the substance was a poison.

Mr. Streeter had known mustard to prove the most efficient emetic where a person was poisoned by an ounce of sugar of lead. The patient recovered.

Dr. Lankester did not consider the blue mark on the gums diagnostic of the effects of lead. He had seen this mark in University College Hospital in patients who had never been exposed to the influence of lead, but who had taken mercury, bismuth, or some other metallic salt. He had, moreover, seen paralysis and other effects of lead in cases in which there was no mark on the gums.

Dr. Bird believed that Dr. Burton himself did not consider the blue mark a constant and positive proof of the presence of lead in the system; but he considered that when we gave a salt of lead, and found the gums became coloured, we might then be sure the system was affected by it.

Mr. Downing read a paper on

THE CHINESE THEORY AND PRACTICE OF MEDICINE,

which will be found at page 792 of the present Number.

The President observed, that the Chinese in some parts of their treatment, such as giving tiger's teeth to increase the strength, seemed to be influenced by something resembling the doctrine of signatures formerly so prevalent in Europe. Mallow was originally used in fomentations of the abdomen, not from its demulcent properties, but because its fruit was marked by a depression resembling the umbilicus. Rhubarb had been given in jaundice on account of its yellow colour, and was still a popular remedy in that disease; saffron came into use in eruptive fevers, likewise on account of its colour; and he had seen foxes' lungs administered in the country for consumption, on account of the long-windedness of that animal. A fellow of the College of Physicians had in our own day perpetrated quite as many absurdities concerning the pulse as the Chinese. He alluded to the two large volumes of Rucco. This author described two hundred kinds of pulse, and amongst others an "uterine pulse," by which he could distinguish whether a woman was pregnant, whether of one child or twins, where the placenta was attached, what kind of delivery she would have, and a great deal more.

Mr. Streeter perceived in some of the Chinese doctrines a resemblance to the humoral pathology. The first two charters of permission to trade with India were granted in consequence of the services of medical men. He considered this very honourable to the profession, and he hoped that the same

humanising influence might yet effect similar benefits with regard to China.

In answer to questions, Mr. Downing replied, that the Chinese professed nothing deserving the name of surgery; they had the greatest objection to use the knife; they never let blood on any account; they neglected fractures and dislocations in an awful manner; they allowed bullets and other foreign bodies to remain in the wound. They sucked poison from wounds with the mouth, but they did not perform cupping; they, however, opened abscesses, but often injudiciously.

THE

BETTER MODE OF OBTAINING REMUNERATION

FOR

MEDICAL SERVICES.

To the Editor of THE LANCET.

SIR,—After all that has been said during the last ten or twelve years respecting the remuneration of medical practitioners, I am surprised to find that much difference of opinion amongst medical men still continues, and that men of respectability and scientific attainments yet cling to a practice which must degrade its members both in their own eyes and those of the public, causing them to be considered by the bulk of the population as grasping tradesmen, forcing an unnecessary quantity of their wares upon their customers at a most exorbitant profit.

If any one wishes to satisfy himself that this is a correct view of the case, let him have half an hour's conversation upon the subject with some of the tradesmen in his neighbourhood. If he speak of the poverty of medical men, and the difficulty they experience in getting on in practice, they reply, "that it is the best trade going; that their profits are enormous; that they get *tenpence out of every shilling*." If they are told that this includes the price of his time and exertion, they say, "that although other tradesmen go round to their customers for orders, yet they never think of putting any additional profit upon their goods in consequence of *that*."

Another consequence is, the distrust which is begot in the minds of the patients towards their medical attendants. I have heard patients say, when receiving a large quantity of medicine, "Confound this doctor, I wish he would tell me which part is intended to do me good and which to procure him remuneration. He ought to be paid for his time and exertions, but that is no reason why he should make a waste-butt of my stomach. Perhaps if I take this pill at bedtime, and throw the six draughts out of the window, every good purpose will be answered." This is injurious to the patient and discreditable to the medical attendant. The patient can receive no benefit from medicine which he does not take; and the doctor is surprised that his remedies have no effect, and perhaps gets into discredit for not curing a disease which he may have said was by no means serious.

Another evil is the neglect of other remedies than drugs. When an apothecary, keeping in view his own interest, prescribes for a patient, his principal consideration must be, not what will most benefit the patient, but what *drugs* are *most* applicable to the case; for if he prescribe anything but drugs, he will receive no remuneration.

This plan also enables dishonourable persons, under false pretences, really to make more money by a patient than another whose charges *appear* to be greater. Thus, a medical man of repute may prescribe the medicine that is necessary for a patient in the form of a mixture, and charge three shillings for it; while another charges only half-a-crown for a mixture, but takes care to send a pill and draught in addition, for which he will charge eighteen-pence or two shillings more.

But in what way should we be remunerated? For our visits, and nothing else. Some persons propose that we should charge druggists' prices for medicine, and an additional sum for visits, which I do not consider to be any improvement on the present practice; for even in this case the drugs must yield a profit, and all the above objections still be in force. For twelve years I have adhered strictly to the plan of charging for visits, and can, therefore, speak of its effects from experience. I believe the majority of the public care little about the way in which they are charged, provided the bill does not come to much more than they expected. A great many, however, cannot imagine that a medical man has any object in altering his mode of charging but that of putting money in his pocket; and those, therefore, who charge for visits acquire a character for making exorbitant bills, while, I believe, their amount is less than it would be on the old plan. This is the only objection I have met with on the part of my patients. I have never had my charges opposed upon the ground of their illegality, nor have I met with any objection to my charging a rich man twice as much as a poor one; but I believe I obtained the reputation of making high charges, and therefore my practice suffered.

But in what way is the change to be effected? It would be useless for medical men to attempt the alteration unless they were unanimous, which is hardly to be expected: for, if only a few, desiring to take an unfair advantage of their brethren, adhere to the old plan, they would obtain the reputation of underselling. My own opi-

nion is, that nothing but a legislative enactment would be of use; and any Bill to amend the laws relating to medicine would be deficient in one of the most important points of medical reform, if it did not expressly forbid medical men from making a profit of the drugs they prescribe.

The only objection that I can anticipate to my plan, on the part of general practitioners, is the fear that their remuneration would be lessened by it; but this by no means follows, except in the case already alluded to, where different persons follow different plans. The question of the mode of remuneration is quite different from that of its amount; and while I would strictly prohibit medical men from depending upon the sale of drugs for remuneration, I would leave open its amount, upon the most free-trade principles. Let medical men obtain as much as they can for their services, and let patients who find themselves aggrieved by the charges of one doctor go to another, who charges less. Men of repute would thus be enabled to obtain good fees, while others would not, under the appearance of cheapness, be able to make more of their patients. I am, Sir, your most obedient servant,

JOSEPH CURTIS.

Camden Town, Feb. 22, 1842.

CYCLOPÆDIA OF SURGERY.

To the Editor of THE LANCET.

SIR,—In reply to your complainant respecting the delays which have occurred in the issues of works published in parts, I beg, in regard to the "Cyclopædia of Surgery," to state in mitigation, that I have never, either as contributor or editor, been in arrear with the printer in a single instance. In my position, however, I am exposed to blame, and I do not desire to screen myself from what may justly be laid to my charge. It would be an easy matter to be punctual with the readers of the "Cyclopædia," if nothing more were required than to press into their service the floating talent available at the present time for any subject. But my chief aim being to give a *practical* character to the work, my sphere for selection has been limited. I have, however, spared no pains to secure the co-operation of men who, in reviewing the opinions of their predecessors, should, from position and experience, be competent advantageously to form and propound their own. You are yourself my witness that my efforts have not been unsuccessful.

The interruption now complained of occurs in the article *Fracture*, a subject of the utmost practical importance to the surgeon. In disposing of this article, I consulted the best interests of my readers, by intrusting its execution to Dr. M'Donnell, of the Richmond Hospital, a gentleman as well qualified to treat it ably and lucidly as any man in the three kingdoms. He undertook the task, and the article was to be in my hands in November. *All the manuscript up to Fracture was then in print.* Unfortunately, about this time, Dr. M'Donnell was attacked with a dangerous fever. Not receiving the manuscript, and not hearing from him, I went myself to Dublin in December, and found him entering on convalescence. Since that time, he has been labouring as closely at his task as the state of his health would permit.

Under these circumstances the delay was unavoidable, and on that account will, I trust, be leniently considered. I am now happy to say, judging from the portion of the article already in type, that it will plead more eloquently for its author than I can. For myself, I cannot express the annoyance I feel that my readers should have any just grounds of complaint. By way of atonement, let me be allowed to state, that I have exerted myself successfully to recover lost time by getting the articles in advance as forward as possible: in fact, all the considerable articles up to the letter M may be said to be now ready for press. One word more in extenuation. Obstruction may depend, as in the present instance, on a single contributor, as the alphabetical distribution of the Cyclopædia precludes the possibility of substituting one subject in lieu of another. I remain yours, &c.

W. B. COSTELLO.

10, Golden-square, March 1, 1842.

APPROACHING MEDICAL LEGISLATION.

To the Editor of THE LANCET.

SIR,—As one of the great body of general practitioners, I am anxiously looking for your remarks on the proposed Medical Bill of Sir James Graham. If we are to believe the *periodical* emanating from St. George's, the framers of the Bill have *three* distinct objects in view.

1st, To replenish the funds of the Royal College of Physicians, by diverting into their coffers the proceeds of examinations; 2nd, to degrade the general practitioner; and, 3rd, to injure the public. The two latter objects will surely be effected by removing all legal restrictions from medical practice.

The general practitioner has of late years been complaining, and with justice, that he has not been protected sufficiently against druggists and unauthorised practitioners, notwithstanding the penal clauses of the Act of 1815, but the announced measure proposes to remove all protection, and to *legalise* by not *prohibiting* the most ignorant pretender; and this, after the experience of a quarter of a century, has proved that the public may be abundantly supplied with educated men.

The whole business is said to be moving on with the secrecy of an act that will not bear the daylight, but the general practitioner will not fail to receive your able and eloquent advocacy, while Dr. Webster and his associates, and nine thousand licentiates of the Act of 1815, are ready to awake at your summons. Your obedient servant,

CIVIS MEDICUS.

February 24, 1842.

*** We shall see. The matter is in the hands of the great body of the profession. The last time of asking is at hand. It must soon be known, far and wide, on what behalf they will announce themselves.

OPERATIONS IN THE LONDON HOSPITAL.

To the Editor of THE LANCET.

SIR,—In last week's LANCET there is a paragraph containing a distinct accusation of professional blundering against two gentlemen at the London Hospital. I beg to inform you that there is not an atom of truth in either of the assertions therein contained; your correspondent is evidently no *pupil* of our hospital. I am, Sir, your obedient servant,

AMICUS JUSTITIÆ.

*** None can regret more than ourselves the publication of erroneous statements, and we are ever ready on such occasions to do whatever may be in our power to remove the impression which they are calculated to produce. The above note has been authenticated, and our correspondent informs us that "no case of empyema has been tapped in the hospital for years," and consequently that no intercostal artery could possibly be wounded. Moreover, he remarks that the mode of using the trocar in the London Hospital is such as to render such an accident improbable. This explanation is most satisfactory as relates to the gentlemen whose professional ability has been impeached, but it is at the same time most disgraceful to the person who penned the communication of last week. For the future no such statements as that which we now condemn shall appear in the pages of THE LANCET, unless authenticated by the name and address of the writer.

ROYAL COLLEGE OF SURGEONS IN LONDON.

LIST of gentlemen admitted members on Friday, February 25, 1842:—Charles Smith; Edmund Henry Peters; Horatio Girdlestone; Joseph Schofield; Henry Norton Shaw; Thomas Patrick Matthew; Richard Tilston; Edward Turner.

TO CORRESPONDENTS.

Want of space compels us to defer *Dr. Sutherland's* communication.

Publius.—A partial dislocation of the shoulder may undoubtedly exist.

Many experiments framed on the principle suggested by *Alpha* have at various times been tried, but none of them with results that warranted their repetition. It is unnecessary, therefore, to publish his letter.

G. I. K. may have supposed that in preparing his letter for publication he was promoting sound principles in medical education, and advocating the views entertained in this Journal on the subject of medical reform. For his mistake we cannot account. He will no where find in these pages any advocacy of "acknowledged" or (more commonly called) "recognised" schools. It is not necessary to illustrate farther the diversity between two plans, for such schools form the key-stone of *G. I. K.'s* plan of medical reform. We may simply add that the point respecting which *G. I. K.* considers that there is "the most difficulty to be apprehended" would, of all "difficulties," be the least, simply because under any new law the person who is a legally-qualified practitioner now, would be a legally-qualified practitioner then, with power to belong to any new medical institution which the legislature might create, either by virtue of his present station, or at the least possible cost of money to him that reason and necessity might ordain. The acquaintance of our correspondent with the wants of the profession, does not keep pace with his good feeling towards that body.

Mr. Claisse's letter did not reach us until after THE LANCET of Feb[illegible] was at press, or his request should have been promptly complied with. The 1st of March arrived before a new number was to be issued.

The letters of *A Governor* (Chelmsford), *Mr. Robert Graham*, *Dr. Cookson*, *Mr. J. T. Davies*, and *Mr. Dixon*, reached us too late for other notice or insertion this week.

MR. HAMILTON.—With the greatest readiness we contradict the assertion of the correspondent at page 774 in our last week's Number, under the head "Paracentesis Thoracis," relating to a case alleged to have terminated fatally after an operation by Mr. Hamilton. The statement of the writer it appears is wholly an invention, and we regret the imposition which he attempted for a brief space to practise by his communication.

Mr. Balman requests us to state that his name has been incorrectly spelt Balmain in the discussion at the University College Medical Society, published in our last. We find it to be as printed in the manuscript.

Erratum in our last, p. 755, for extract of conium, poppies, and dandelion, of each, ʒj, read ℈j.